

April/May 1990

# approach

The Naval Aviation Safety Review



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## REFLECTIONS

OUTSTANDING NAVAL AVIATORS LOOK BACK

# REFLECTIONS REFLECTIONS

This issue of *Approach* took better than a year to put together. What began as an idea to interview the first Naval Aviator to become president and get his feelings about safety, blossomed into 10 "There I was..." stories of a different sort. After hours of phone calls and meetings, many miles of travel and a ton of correspondence, the *Approach* staff proudly presents "Reflections: Outstanding Naval Aviators Look Back."

At a glance, some of the names are very familiar. After reading the biographies of the ones that aren't, there should be no doubt why we included them in this special issue.

"NATOPS is written in blood," is the common expression thrown about when the ready room topic turns to safety concerns. The answers to the questions we posed would also show that NATOPS is written in courage. No daredevils or foolhardy individuals who would blindly take unnecessary risks, these men and more like them paved the way for the "routine" flight ops of today.

How can we pay them back? By learning their lessons and not making the same mistakes they warn us about.

Wendell Cull

# approach

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## Reflections

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On the cover: George Bush flying a Grumman TBM Avenger - 1943. Painting by Ted Wilbur. A limited edition print is available from Aerosphere Publishing Co., 18226 Swan Stream Drive, Gaithersburg, MD. 20877.

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The TBM was the largest single-engine aircraft to fly from a carrier during World War II. After a rocky start at the Battle of Midway, the Avenger became the workhorse of the fast carrier strike forces. Here, Ltjg. George Bush prepares for takeoff in his TBM. (U.S. Navy Photo)



Ltjg. George Bush in the cockpit of his TBM in 1944. (U.S. Navy Photo)

**M**any of America's presidents have served in the military; several have seen combat. However, George Bush is the first aviator to become president. His status is unique because, at the time he flew Grumman Avengers in 1944, he was one of the youngest Naval Aviators. Twenty-year-old Ltjg. Bush flew 58 combat missions in the Pacific as a member of VT-51 in USS *San Jacinto* (CVL-30). During a strike against the Japanese-held island of Chi-Chi Jima, he and his crew were shot down by flak and had to bail out. Ltjg. Bush was the only one to survive from his three-man crew. He was eventually rescued by the submarine USS *Finback* (SS-230), but he did not return to VT-51 until October 30, eight weeks after being shot down.

After rescuing Ltjg. Bush, and two other pilots and two aircrewmembers, *Finback* continued its war patrol. As an unexpected member of the submarine's crew, Bush experienced the claustrophobic existence of the Silent Service. *Finback* attacked Japanese shipping, and was also depth-charged by Japanese surface ships. He also helped out by censoring outgoing mail and standing night watches while the sub ran on the surface to recharge its batteries.

Ltjg. Bush received the DFC for attacking the target on Chi-Chi Jima through heavy flak just before he was shot down. He also accumulated three Air Medals during his combat tour.

President Bush was no stranger to aviation mishaps. His TBF's landing gear collapsed on landing during FCLPs in November 1943. Before being shot down, he ditched his TBM on June 19, 1944, in the middle of the great air battle that became known as the "Marianas Turkey Shoot." *San Jacinto* was operating near Guam as part of the invasion force against Japanese bases in the Marianas, and his aircraft was on the cat. A Japanese raid turned the carrier's attention away from launching aircraft. The ship's guns fired at the enemy aircraft while Bush and his crew sat on the cat, their aircraft's engine running.

As the attack passed, the VT-51 "Turkey" (the 1944 use of the nickname for the TBM) was launched. However, immediately before the stroke, Bush saw that he had no oil pressure, perhaps as a result of damage from fire by the Japanese raiders or from one of the carrier's flak guns. Before he could signal to abort the launch, the catapult fired, sending the heavily loaded bomber into the air. As he lost power, Mr. Bush warned his crewmen to prepare for ditching and made a smooth landing ahead of his carrier. The three men left their sinking aircraft and got into their rafts. An accompanying destroyer picked them up.

President Bush took time from his hectic schedule to jot down personal responses to our questions about the part safety played in his wartime flying career.



**Approach:** You flew 58 combat missions in the Pacific during World War II. On September 2, 1944, you were shot down during a strike. Could you describe what training, both at Pensacola and in your squadron, might have helped you to survive the bailout and while you were in the water?

**President Bush:** Our preflight training taught us certain underwater procedures and gave us familiarity with the water, itself. Actually, I never trained at Pensacola; I got my wings at Corpus Christi. Bailout procedures from the TBF<sup>1</sup> were taught at Fort Lauderdale before I got to VT-51 in June 1943. There were no simulators in those days, just verbal instructions.

**Approach:** During your combat tour, did you think about safety much, as much as we do today?

**President Bush:** We thought about safety a great deal. There were a lot of safety posters around, especially for brand-new pilots. The posters related to taxiing, care of aircraft, and a lot of elementary areas. We didn't pack our own parachutes, but we did learn about caring for our chutes. We received a lot of instruction about safety during a bailout. I remember being hit and I instinctively turned my aircraft to the right to release the airstream pressure from the door leading into the ventral gunner's compartment.

**Approach:** As the highest-ranking government official, you've had several opportunities to see today's Navy aircrews in action. Has the basic sequence on the carrier flight deck changed in the 40 years since you flew from the San Jacinto?

**President Bush:** I've seen carrier crews in action and the basic sequence has changed dramatically. Things seem much more efficient and more complex than they were in my day.

**Approach:** Today's naval aircraft rely heavily on so-called "systems" to fly and



TBF Avenger torpedo bomber revs up before moving into launch position.

perform their missions, and part of today's safety awareness is a thorough knowledge of aircraft and weapons systems. How did you train in the Avenger regarding its operation and mission?

**President Bush:** Our planes did not rely on "systems." They were "needle-ball" and "airspeed" and slightly more. We had an automatic pilot but it was not particularly reliable and I did not use mine very much. The weapons systems were simple by today's standards. We dropped bombs or torpedoes but in a very unscientific manner. We had a .50-caliber machine gun in the dorsal turret, but there was no complex electronics suite or anything of that nature.

**Approach:** Did you train by fighting with different types of aircraft in what we would call today dissimilar air combat training?

**President Bush:** The way I trained in the TBM at Fort Lauderdale was to climb in and put the throttle forward and take off. We had Link trainers for instrument training but there were no special simulators for the TBM. We didn't train by



Once a Naval Aviator, always a Naval Aviator. During a visit as Vice President, "Lt." George Bush wears his flight jacket. (White House Photo)

fighting different types of aircraft. We did a lot of low-level flying but none of the simulated attack flying that I have seen today. The bottom line is: it was a lot different then – a lot different.

<sup>1</sup> At the time, the Avenger's "TBF" prefix indicated a torpedo bomber built by Grumman. By late 1942, Grumman's entire production capability shifted to the F6F Hellcat, and the company's other aircraft – the F4F Wildcat and the TBF Avenger – were farmed out to the Eastern Aircraft Division of General Motors. Thus, late versions of the Wildcat and Avenger became the FM and the TBM, respectively. While President Bush may have trained in both TBFs and TBMs, by the time he reached fleet service, the later TBMs had replaced the earlier aircraft – Ed.

**O**n 10 May 1972, two Naval Aviators made history in an F-4J. After several months of dropping bombs in support of operations against the invading North Vietnamese, Navy fighter squadrons spent the day engaging MiGs in the heaviest aerial action of the war. Eight MiGs were destroyed, six by VF-96 in USS *Constellation* (CVA-64). Three of the MiG-17s were downed by one VF-96 crew, and combined with two earlier kills on 19 January and 8 May, the victories made Lt. Randy Cunningham and his RIO, Ltjg. Willie Driscoll, the first American aces of the Vietnam War, the first all-missile aces, and the first U.S. aces since Korea.

After their third kill, the two men ejected from their Phantom after their aircraft was hit by a SAM south of Hanoi. The SAR effort required to rescue the Navy's two newest aces was as hectic and dangerous as their earlier MiG fights. The North Vietnamese sent two PT boats toward them, and there was heavy fire from communist positions on shore.

A native of Los Angeles, Randy Cunningham served in VF-96, after training with VF-121, the F-4 RAG. After his return from Vietnam, Cunningham served a tour as a Top Gun instructor, then a tour with VF-154. After a staff tour with Op-05 in Washington, he returned to VF-154 as the Operations Officer. His next assignments were on the staffs of Commander, Seventh Fleet, and of COMFITAEPAC. His final tours were as XO, then CO, of VF-126, the Pacific fleet adversary squadron at Miramar.

After he retired as a commander in 1987, Cunningham became Dean of The National School of Aviation, and finally started his own aviation marketing company, Top Gun Enterprises.

**Approach:** What is your view of aviation safety, especially relating to crew coordination?

**Cdr. Cunningham:** I think the team concept is very important, especially in combat. When you're in combat, you have a different kind of safety: it's called survival. If you're a real tactician and a purist, you cover all the things you need to survive, just like you do outside combat. Knowing your aircraft better than anyone else in the squadron, knowing the enemy's aircraft and weapons better than anyone else; that's how you win. In everyday flying, you win by the same tools.

**Approach:** Can you differentiate between survival safety in combat and everyday operations?

**Cdr. Cunningham:** They're the same. The grand word for it is "professional." Pappy Boyington, the World War II Marine ace, once said that a dogfight is won before it ever takes place. The same thing is true in safety: it depends on the time and energy you spend in preparation. Of course, there's the luck of the draw: you can get an airplane that blows up on you. But preventing pilot-error problems involves everything you put into your work before you strap in. Safety is more

than a word. It's an attitude, in combat, flying off a ship in the IO, or at NAS Miramar.

**Approach:** You use the phrase "You fight like you train," which has become a motto for today's fighter crews. How did you begin applying that to your career?

**Cdr. Cunningham:** After I got out of the F-4 RAG, VF-121, in 1969, I was supposed to join VF-96 in the *Enterprise*. But there was a disastrous fire on the ship, and I was delayed in Hawaii, and finally "stashed" at Top Gun. I had done fairly well in ACM with VF-121 – at least I thought I had. Now as I look back, I realize I didn't know beans. I really learned how to fly that airplane when I was at Top Gun.

VF-96 lost a lot of people in the fire and when they returned, they needed to exercise their aircraft. Four or five of us nuggets flew those F-4s every day. I thought, "I have arrived. No more grades, above average or below average. I'm a fighter pilot. I'm actually working."

My COs really believed in dissimilar air combat training (DACT). We fought against F-106s, A-4s, and other F-4 squadrons. Those skippers would fight against anyone who would engage us. It

was the most intensive training I ever had. We dropped live bombs, shot Zunis, we hit the targets. When I met my first MiG, when I dropped my first bomb on the enemy, I had been there.

When I was in the squadron, I wrote 20 questions on the blackboard every day about the MiG's capability for the guys.

The other people told me, "You're not going to see any MiGs out here." When I pulled off target once at An Loc, I told my wingman to set 35 miles in his gun-sight, go to ARM, and set his centerline tank to blow off. An Loc was 800 miles from the closest MiG. When we got back, he asked me why I had him do all that. "There's no MiGs around here," he said.

When I pulled off target on 10 May 1972, I had four MiG-17s firing tracers past my cockpit. Do you think I could have gone back into the cockpit to set up my systems, then shot them? It would have been too late.

People ask me why I became an ace, and other guys didn't. For one thing, I was very lucky; I had the chance. But when the chance came, I was prepared. It was a combination of Navy training, and my own discipline.

**Approach:** For today's crews, how could you apply your wartime experiences to peacetime operations flying around the ship?

**Cdr. Cunningham:** I'll give you an example. One day we had four flights; we normally had three per crew, but an airplane had clobbered *Connie's* deck, and Willie Driscoll and I were on our third flight, a BARCAP. The ship told us to go to Da Nang, top off all our tanks – at that time we carried *three* tanks – then come back to the ship and trap. They promised to have the deck cleared up. Well, they didn't, and they told us to go back to the BARCAP station so that we wouldn't breach the BARCAP.

I was exhausted. And when we returned we had to go back to Da Nang. The ship then called us back, and when we returned, they told us, "Charlie now." I still had fuel in my wing tanks, as well as the external tanks. Now, with all those flights, close to 12 hours of flight time that day, I was dead tired, torching around in burner in the dark, pulling a lot of Gs, trying to burn off gas with the fuel dumps on. I hit the initial at probably 500 knots,



Advantage Cunningham by Mark Waki

put the speed brakes out, and went screaming downhill to try to get down as fast as I could. The whole world went upside down. That wasn't smart; I really made a mistake there. I was put into that box, but I shouldn't have allowed myself to be put into it.

**Approach:** What happened next?

**Cdr. Cunningham:** I got back aboard the ship, but the only reason I could make that approach was because we had just received the Mode I capability. We had been practicing Mode I approaches during the day, but I had never used it at night.

I had vertigo so bad, I remember calling Driscoll, "Willie, I don't think I can get this thing on board. I've got vertigo, really bad." He replied, "Duke, I think we're upside down."

"Damn, Willie," I said, "don't tell me that. I need you now!" He had vertigo worse than me. I felt I was in a turn, with a 120-degree angle of bank. All the instruments showed us level. It was a real fight, but I got the plane into the window where I could lock up the Mode I, and the system took over. I remember leaning back in the seat, trying to square myself, to sit in the right position as much as possible. Pretty soon, my head cleared, and when we got fairly close to the ship, I was able to take over manually and trap.

But at one point, I don't know if I could have even gone back to Da Nang. That's how bad it got.

If I hadn't had Mode I, I would have had to go back to Da Nang. I put myself in that situation. We were the only ship on the line at that time, and we did not like to breach the BARCAP. We had tried to launch two other F-4s, but for one reason or another, we couldn't. So Willie and I were the only candidates.

**Approach:** How does that apply today?

**Cdr. Cunningham:** I think it's that old can-do attitude. The ship told me, "Go to Da Nang, then come back. No, you can't land now, we need you to go back. We can't launch aircraft. Then do the BARCAP." Even as a jaygee, I should have said, "Sir, I am exhausted." But instead, I said "Aye-aye, three bags full." We seem to learn the pitfalls later in life.

When I was the CO of VF-126, I said, "Hey, guys, I let myself get put in a bad situation where I said, 'I'll go ahead. I can hack it.' and that's really dangerous. There's a point where you need to stop and say, 'OK, what's the hazard potential here not only to me, but to someone else?' One flight is not going to make a career. And I guarantee most of the COs out there will agree." Now, of course, if you do that a lot, they'll probably squint



at you, but I've probably done it three or four times in my Navy career, all in the last five years of flying. That type of decision goes back to being a professional aviator. You know the hazards involved, and it's not just yourself that you're putting at risk.

**Approach:** *Getting back to your flight on 10 May 1972, after you and Driscoll ejected, you were the objects of a very involved SAR effort, and you hurt your back during the ejection, is that right?*

**Cdr. Cunningham:** Yes. Most injuries during ejections come from the compression during the shot. We were in a violent spin when we ejected. The whole world was going around. I had bombed a target, shot down three MiGs, been hit by a SAM, and rolled my plane out over the water. When it finally exploded, we went into a real spin. I remember trying to pop the drag chute – of course, I didn't know my plane's tail was gone.

I said, "Willie, don't get out" because I could see land and water when we rotated and I didn't want us to become POWs. We never used "eject" because we'd heard of some instances where people had ejected after hearing the word in a normal conversation.

He said, "I'll stay with you, Duke. The handle is set" That meant he had set the command ejection handle to eject us both when he pulled the curtain.

I stirred the controls around, and the rudder was completely gone. I finally got out only, "Willie, e..." and he was gone. He punched us both out. He was primed.

That type of coordination not only gives you confidence, but those are the kinds of things that you are talking about safety-wise that you build into your training. Two guys working as a team is a lot better than one guy trying to do everything.

Now, as far as hurting my back, I can remember tumbling, and the seat-man separation. When the chute opened, the riser came by my neck. I had a burn and a bruise on the side of my neck where the cable or the metal piece on the drogue gun hit me. The snap and the jolt really gave me a lightening bolt of pain, right up my back.

We'd never been in a parachute. Before I hit the water, I dropped my raft because I wanted to get out of the parachute as

quickly as possible. I wanted to get away from the enemy gunners who were shooting at us and not to get tangled in the chute. The wind picked up the raft and began swinging it. And every time I'd be on the upstroke of that pendulum, the parachute would tuck under the downwind side. I thought, "Criminy! that thing is gonna fold up and stream!" I tugged on the other side. Later, I talked to the PRs and they said it would not have done that, but I didn't know it at the time.

The raft hit, and I remember looking down, like a fat man trying to see his toes. And my MK-3C life preserver which went all around my waist obscured my view, and I leaned way forward against the risers. I released my koch fittings in that position, and from 20 feet, I did the biggest belly flop into the water.

I was under water, fighting my way to the surface. My hand hit something really fleshy, and I thought, "Oh, man, shark!" It turned out to be a rotting corpse of a North Vietnamese that had floated downstream. He was decaying, and his teeth were showing. I didn't need that at the time. You can imagine the panic.

I told Willie later, "Willie, I thought it was you, at first, but the guy was too good looking."

**Approach:** *Did you keep your flight gear in the water?*

**Cdr. Cunningham:** As soon as I hit the raft, I settled down and looked for my pistol. I was shooting on the way down because I wanted them to know I was armed. I had reloaded three times. I got in the raft and I was still concerned because I was still close to the beach. I could see WBLCs (water-borne logistics craft). I got out of the raft to maintain a lower profile and hung onto it. Then, I started to throw away my helmet, but I remembered my training which told me to keep it for the helo pickup. I started swimming out to sea, and I deflated my MK-3C, because I was floating so high and I couldn't swim.

When the helo arrived, I let the raft go. That could have been a mistake. If the helicopter had not been able to get me, I wouldn't have had my MK-3C or my raft. If the helo had been hit, or had to leave, I'd have had a problem. But there were actually three helos there from the *Okinaawa*. I thought the odds of losing all three helos were less than my chance of

getting shot. I had no flotation devices by that time. I had also thrown away something that would have made me more visible if the helos had lost sight of me.

**Approach:** *You touched on your attitude toward personal safety during your command tour at VF-126. Can you elaborate?*

**Cdr. Cunningham:** I think safety is a function of leadership. When a CO assumes command, he looks back at all the COs he has had. The CO I had in VF-154 let me do my job as Operations Officer. Another CO of mine was such a micro-manager that nothing got done in the squadron. In fact, he caused hazards because everything was tied up.

Another skipper really looked after the troops, made sure they got awards, and the things they really needed. I thought about that. In contrast, I knew one admiral who was such a poor leader, he nearly destroyed his command. The only time we ever saw him was when we were in trouble. I remembered him, and I swore I would never conduct myself like that. He did not foster a good safety atmosphere, keeping us under the gun all the time.

Of course, there are times when a leader needs to hold the reins in, but he doesn't need to grind everyone under his thumb. I heard of one fighter skipper who said, "Everyone's gonna fly combat in this squadron. I don't care who they are; they going to pull their load." A CO needs to look at every person in his squadron, officer and enlisted, because everybody's different. You can throw some crews out over blue water because you know they can get back aboard the carrier. But you wouldn't take a newly arrived nugget in the IO and throw him out there on his first night CQ. We were doing really well. In VF-126, we never had a mishap. But there were a few instances that made me stop and think. I talked to my admiral and said, "Admiral, we really need to square ourselves away." I imposed my own safety standdown.

**Approach:** *What was the reaction from your squadron?*

**Cdr. Cunningham:** They understood. They knew the potential for hazards. The key is, again, you fight like you train, and you live like you train. Otherwise, you'll die like you train.

— Peter Mersky



# DRISCOLL

**W**illie Driscoll was commissioned through AOCS and joined VF-96 for a combat cruise in 1971. Following his tour with that squadron, he served with Top Gun as a staff member before transitioning to the F-14 with VF-124. He made two cruises with VF-2, then returned to VF-124 as an instructor. Cdr. Driscoll left active duty in 1981, and affiliated with the Naval Air Reserve, serving with VF-301. He has 1,200 hours in the F-4, and 2,000 hours in the F-14. He recently retired from the Naval Reserve as a commander, but still maintains liaison with the Navy Fighter Weapons School as a guest lecturer. He is presently a commercial real estate broker in the San Diego area.

***Approach:** Thorough knowledge of your aircraft and its systems is always stressed as a prime factor for surviving in combat. During your 1972 combat cruise, and especially during the 10 May engagements, how did your knowledge of the F-4 help you?*

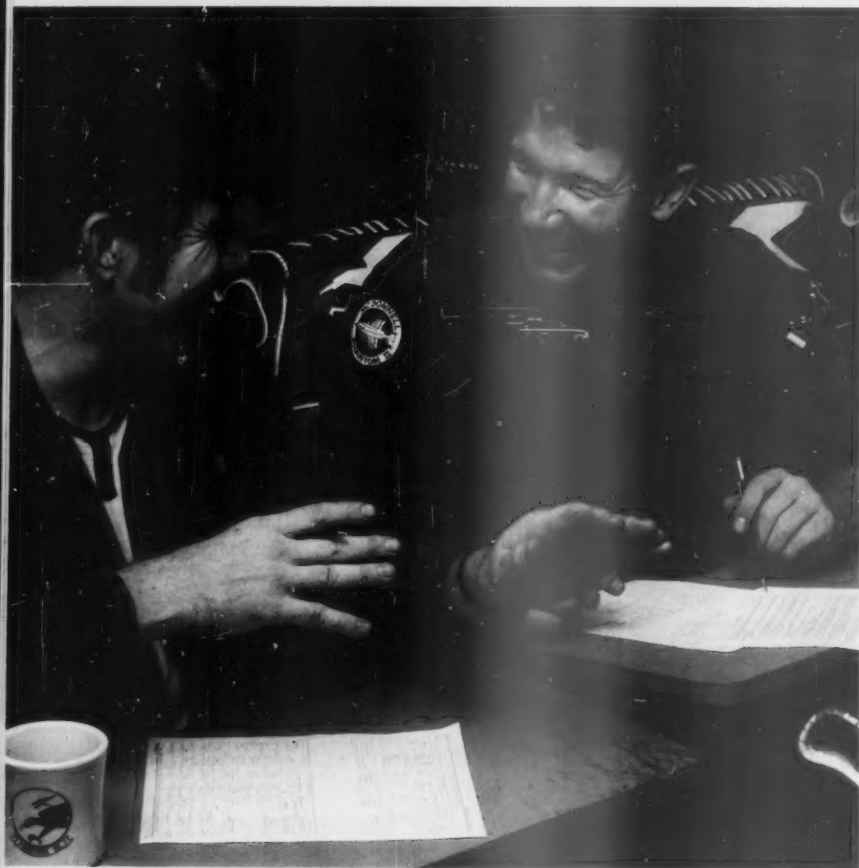
**Cdr. Driscoll:** You go into a combat situation thinking you're well prepared, but during your first few missions you find you had no idea what you were getting into. It's dramatically different from what anyone has told you. The major thing I had to deal with – as do most combat aviators – is what we call the outer strato-

sphere of tension and anxiety, trying not to come unglued in a life-or-death situation. Don't misunderstand me, I'm not saying it isn't absolutely critical to know and understand procedures and NATOPS. But what happens to you in combat is so far removed from the NATOPS trainer that your daily surface consciousness fades. Your backup consciousness, which is all you have left, has to be absolute as far as your basic knowledge of the aircraft and tactics is concerned. Your surface consciousness will be tampered with in combat.

I made up cards, with boldface and

Lt. Cunningham and Ltjg. Driscoll return to their ship after being rescued on 10 May 1972.





Shortly before their eventful flight on 10 May 1972, Lt. Cunningham (r.) and Ltjg. Driscoll share a lighter moment during a preflight brief on board the *Constellation*.

tactical problems; I was always reviewing quizzes. I wanted to know the material cold, but I found combat is such a stressful thing in terms of how I had prepared myself. In retrospect, I should have spent much more time working on my basic procedures. During combat, intimate knowledge of NATOPS doesn't shoot down bandits, or prevent them from shooting you down. What is involved is the fundamental makeup of the man, his aggressive spirit, his will to live and win, and his ability to correctly execute basic tactical procedures.

**Approach:** Would you say that today's RIO does not have to be as aggressive as the pilot, but more knowledgeable about the systems?

**Cdr. Driscoll:** I believe that for the best pilot-RIO team, both crewmen have to be psychologically aligned the same way.

You need intensely dedicated, aggressive RIOs, especially in combat. It is critically important that the RIO have that same sense of enjoyment about the work. I always looked at it with a cold, detached, unemotional approach. When I had the chance, watching a bandit explode was a thrilling experience.

**Approach:** What can you say about trying to keep yourself in position to be rescued while under fire during the post-ejection SAR effort on 10 May?

**Cdr. Driscoll:** Well, when I entered AOCS, I was not a very good swimmer and was assigned extra instruction, sub-swim. At the end of AOCS, I was on swim hold. It was not a day at the beach. All the instructors helped us, but the effort had to come from us. One day I was really working hard in the pool, determined to get through, and the light just seemed to come on. The water didn't

seem to be trying to push me down; it was really enjoyable. And that was it. I passed all the swimming requirements that morning.

During the mission on 10 May, we were hit by a SAM just south of Hanoi. Shortly afterward, there was heavy smoke and some fire in the cockpit. We didn't want to eject over land for fear of being captured. I knew the Navy's approach to water survival had helped me and I was confident of surviving an over-water ejection. I was more concerned with the remaining MiGs and other hostile fire.

As we floated down after the ejection, I got my mask and gloves off and secured them. Then, I got on the survival radio to broadcast our position. I was also able to wave at Randy to make sure he was OK. After I broadcast our position, I switched to the beeper and prepared to deploy my raft. I landed in the water about 15 minutes later. The landing could have been a replay of D-WEST training. I flipped over onto my back, and popped my koch fittings, just like in training. There was a little breeze, although I don't remember being dragged. Despite the dogfights and the SAM hit, with the D-WEST training I had received, the water entry was almost routine. (This is quite a statement for me to make since I had always hoped that, after an overwater ejection, I would land in water no deeper than my knees.)

**Approach:** The SAR portion of your story has not been repeated as much as the aerial portion.

**Cdr. Driscoll:** Well, the North Vietnamese sent two PT boats out to get us. I think they were just coming out to get two Naval Aviators, and didn't know what Randy and I had just done. We swam over to the raft with all our gear on. I saw schools of sea snakes, and I thought it would be prudent to get into my raft immediately. I was tired, and I was probably functioning on adrenalin. I pulled myself in, and relaxed for a moment. Then, I remembered the PT boats and got out of the black raft thinking I could hide behind it. (I couldn't see the PT boats because the waves were too big. Also, I was in quasi-shock.)

**Approach:** Did you get out of any of your flight gear?

**Cdr. Driscoll:** No, I kept everything on,

including my helmet, except for my mask and gloves. It was just like D-WEST at North Island. The helo put a swimmer in the water, while several Marines manned the machine guns.

We got right on the hoist and were hauled up into the CH-46. I wanted to stand up, but they told me to lay down and relax.

**Approach:** What makes for a superior combat aircrew, communication, knowl-

edge?

**Cdr. Driscoll:** That's a good question. You'll find that sometimes your better crews in training aren't necessarily your best crews in combat. I think it's a combination of things. Combat, first and foremost, is such a heavy trip, a place you've never been before; it is laden with tension and anxiety – shooting, people crying on the radio, getting sick; it's hard to put into words. Real confidence in your abilities is

fundamental to your survival.

You develop this confidence first in training, doing the same thing over and over again. In the fighter community, you sometimes see guys with a lot of swagger and arrogance. Many times, those people don't do well in combat. I always felt the confidence to look for was the real confidence, someone who knows what they're doing because they've done it over and over. Also, one of the keys is not to get bored with yourself doing the same basic thing over and over. That always helped Randy and me.

Kills in combat are produced not by great moves, but by avoiding or trying to minimize bad moves. You'll make bad moves – what I call gross mistakes, but your enemy will, too. You want to capitalize on his mistakes and kill him. Try to never let a poorly flown bandit live. You want to continually work on minimizing the number of bad mistakes you make in training. None of this stuff about going up in the sun, dropping the flaps, reversing – that's stuff you read in books or see in movies.

**Approach:** Is there anything else you can tell us?

**Cdr. Driscoll:** I always read *Approach* when I was on active duty. There's a lot of excellent information in the magazine. As a matter of fact, Randy and I may not have survived that SAM hit I described if we hadn't read an article by then-Lt. Duke Hernandez. The article dealt with handling an F-4 after it sustained major battle damage to the hydraulic lines.

Hernandez recommended that aircrews faced with a similar problem severely restrict stick input when trying to control the aircraft's attitude. He felt the F-4 should be controlled by rudder only. In that way, the aircraft might fly a little longer before depletion of the hydraulic system.

That's exactly the same situation we faced after the SAM hit. We still had 25 miles to go before "feet wet," and we used Hernandez' technique by doing a series of barrel rolls with no G. That's one of the main reasons I've always considered *Approach* a must-read for every Naval Aviator. It's fundamental to being the true professional you want to be.

– Peter Mersky



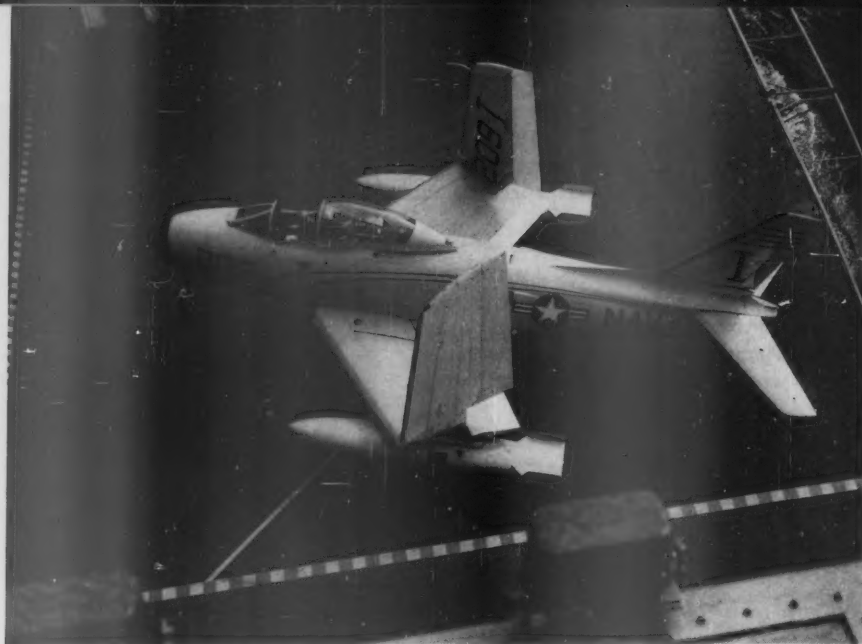
Rushed back to the U.S. after becoming aces, Lt. Cunningham and Ltjg. Driscoll visit with Navy Secretary John Warner (l.) and CNO Elmo Zumwalt (r.)



During ceremonies establishing VF-1 and VF-2 in October 1972, Navy Secretary John Warner awards Navy Crosses to Lt. Cunningham and Ltjg. Driscoll.

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One of VAdm. Engen's favorite aircraft, North American's FJ-3 Fury flew with the Navy and Marines in the late 50s and early 60s. Although obviously based on the F-86, the Navy's "Fury From Columbus" was a redesigned aircraft.

One of that large group of combat-tested World War II Naval Aviators, VAdm. Engen received the Navy Cross as a dive-bomber pilot in VB-19, flying the Curtiss SB2C Helldiver. He enjoyed a varied postwar career as an experimental test pilot, and also saw further combat in Korea, flying the first strikes of the war in June 1950 from USS *Valley Forge* (CV-45). He commanded VF-21, and CAG-11 in the early 60s. He was also the CO of USS *America* (CV-66) during its tour in the eastern Med during the 1967 Arab-Israeli War.

After his retirement in 1978, VAdm. Engen manufactured cabin-class Piper aircraft. He then served as a member of the National Transportation Safety Board and as the FAA Administrator for three-and-a-half years. He is now President of the Aircraft Owners and Pilots Association Air Safety Foundation. *Approach* interviewed the admiral in his Washington, D.C., office.

**VAdm. Engen:** Before we begin, there's something I'd like to talk about – something that characterizes the development of jet aviation. First of all, you have to remember, the good pilots were adventurous. We were building experience, and by the fact that we didn't kill ourselves, we got good. That's a terrible thing for a guy like myself, involved in safety, to say, but it's a testament to how we have developed professionalism in Naval Aviation. When we started flying – and it was really true in the 20s and 30s – the atmosphere was very cavalier, particularly during World War II. We never thought about safety.

I used to fly along the north face of

Molokai in Hawaii. There's a sheer cliff, with a little pinnacle that stuck up. You couldn't go between the pinnacle and the face of the cliff with your wings level. So, I developed the technique of standing on the rudder and going through sideways, between the two rocks. You just did those things. That sounds wild today, but it was characteristic of those days.

**Approach:** That was commensurate with the mishap rate.

**VAdm. Engen:** It was, yes. We didn't even understand mishap rates. The first time I woke up to the fact that we needed to improve our flying procedures was when I realized that we killed 10 percent of our squadron in training and workups



before we went to war. It really sank in.

Never take risks that you haven't explored, or haven't thought out. There's nothing wrong with taking risks. In military aviation, we all must take them at times, particularly in war. But you need to think the risks out. You have to plan. Don't fly extemporaneously.

When we got jet airplanes, we really didn't understand what we had. The Navy had two jet fighter squadrons in the late 40s, one on the East Coast, VF-171, and one on the West Coast, VF-51. I joined VF-51 in 1948 as a lieutenant. I was still pretty young.

I tried to help develop a more professional attitude about flying jets. There were a lot of risk-takers in the group. I had been Operations Officer in a night all-weather squadron, and I began developing instrument flight procedures in jets.

For instance, after takeoff in the FJ-1 Fury – the first straight-wing version of that early fighter – you were already a fuel emergency because you only had 45 minutes of fuel. You had to figure out how to get back. San Diego had fog all the time in the spring, and you had to plan for that. Miramar – or Kearney Mesa as it was called then – was still only a bombing range, and we flew from North Island.

An opportunity came to go to the Landing Aids Experimental Station at Arcata, California, in September 1949. I took an F9F-3 Panther to Arcata, which was a CAA contract operation, run by American Overseas Airways. I took the first jet airplane they'd ever seen up there. I landed, and the whole town came out to see this airplane without a propeller. We only flew if the weather was 200 and 1/4 – or less. We never flew unless we had fog, and that was supposed to be one of the foggiest places in the country. We developed the instrument approach to acquire a visual lighting system, and I flew with a measured ceiling of 0-25 feet, and less than 1/16 mile forward visibility. That's only one light down the runway. You never saw two lights.

I wrote up instrument flying procedures for jets. We used that in VF-51, and then VF-52 picked it up. I devised the teardrop letdown – the jet penetration – when we got the F9F-3. First, we had to teach our pilots, then the people on the ground on



Lt. Don Engen in 1944. He was a divebomber pilot in a Curtiss SB2C Helldiver.

how to relate to us. We had new capabilities, with this rapid up-and-down capability and speed.

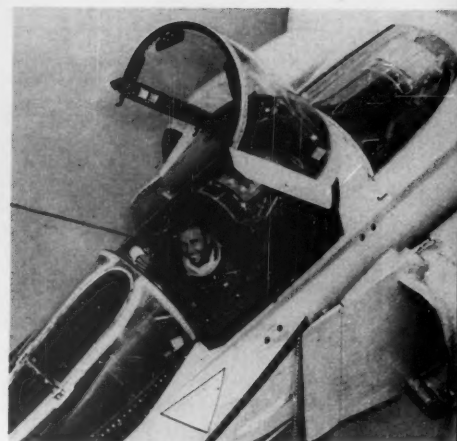
We all had devised different ways, but no one had solidified the procedures until then. I think that is what is so characteristic of those early jet days, and what drove us to be more professional, and hence, more safe. Landings and takeoffs from carriers with straight decks and no hydraulic catapults were part of it, but that was all part of reaching forward.

**Approach:** You made the first night jet takeoffs from a carrier in February 1950, from USS Boxer (CV-21) as part of VF-51. While night operations are commonplace, they are still the most potentially-hazardous form of routine flight operations aboard a carrier. What did you do to prepare for your pioneering flights?

**VAdm. Engen:** Eight of us made those first night takeoffs and landings in jets, three from VF-51, three from VF-171, and the CAG and his Operations Officer. Everyone was fairly senior. As a lieutenant, I was the "baby" of the group. We had to hone our all-weather skills before we flew aboard. It's this instrument flight training that I mentioned before, something I am quite proud of. We did a lot of night bouncing at San Diego, at Brown Field, to develop our night capabilities. Lt. Tom Mix was the LSO, and he stood with a 24-volt battery between his legs to light his suit, as well as the long, hand-held light bars he used to signal with.

The night was black. We made two day cat shots and traps – to warm up – and

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In an F4H cockpit in August 1959.



Cdr. Don Engen set a world altitude record with the F4H in September 1959.

two night launches and recoveries. We had actually left the USS Valley Forge (CV-45) on February 20, and came out to the Boxer for the tests a couple of days later.

We flew a flat pass, at 175 feet altitude, at about 122 knots, with 35 knots of wind across the deck, until we picked up the LSO at the 90-degree point in the pattern. We continued to perhaps 800 feet from the ship, and took our cut from him. Our engaging speed was well below 100 knots. The deck was cleared, but during our landings it was fouled at times. With those axial-deck carriers, we did have



Many consider Vought's F8U-3 Crusader III the ultimate single-seater. However, the impressive fighter lost out to the Phantom in a 1958 competition.

barriers to keep us from going up the deck and crashing into these aircraft spotted forward.

The key point on safety I want to make about this phase is the *professionalism* we developed in learning how to fly the aircraft on instruments *first*. You can't fly at sea without flying on instruments. Our training gave us the confidence and the capability to make those first night carrier landings.

Safety involves limiting your exposure to risks you understand, knowing what you're doing. I spent my whole career as a test pilot living with risk. You have to measure it; there are some times you should say, "No!" Test pilot or not, don't go out there and blindly *do* something dumb.

A good skipper knows when a crewman is not ready to fly. It's far better that the skipper leads and understand his people, rather than having someone rebel and say, "I can't do this." The skipper's experience is vital to the morale and safety of the squadron. He has to make these judgments. It would be a funny outfit if everyone started saying, "I can't."

You can't have an A Team and a B Team. You have to bring the squadron along together. True, some people have

greater capabilities than others. And a good schedules officer will schedule people within their abilities. But, the skipper has to know his people, and bear the responsibilities.

*Approach:* You were also involved in early work with the mirror landing system. How does that system compare to today's carrier landing aids?

VAdm. Engen: The mirror landing system was interesting because it led to a whole new concept in carrier operations. I was the first pilot to fly aboard a ship using the new system, during my exchange tour at Britain's Empire Test Pilot School at Farnborough in 1953. I flew a De Havilland Vampire, one of their early single-seat jet fighters, aboard HMS *Illustrious*.

The bingo procedure was to continue making landings until you had 50 gallons – we used gallons, not pounds. If we were airborne when we reached bingo, we climbed as high as possible until we *flamed out*. We shot a flameout approach to the bingo field, and made a dead-stick landing. This may sound hairy, but that was how things were done.

We developed the procedures at the Royal Aircraft Establishment (RAE) at Farnborough. The RAE trucked the lens

to Southampton, and put it on board *Illustrious*. I flew out to the ship at sea. There was no radio to communicate with the LSO – or batsman as the British call him. I was on my own. The LSO was there, but only to observe, in case I hit the ramp.

I couldn't see the mirror because the datum light wasn't on. So, I eyeballed it and landed on board. We didn't make cat shots, and they pushed me back until the Vampire's twin booms hung over the aft end of the deck. Then, the flight deck officer gave me three nonchalant waves of his flag and turned his back on me, leaving me to launch with a deck run. I made three landings before they could figure how to turn the datum light on. By then, it was time for lunch.

They finally found the "o-n/o-f" switch, and got the mirror going, and I made a series of landings. Clearly, the mirror provided flexibility and accuracy. I recommended its adoption for the U.S. Navy. Later, we bought a mirror from the British and installed it in USS *Bennington*. It was two years after I had flown on board *Illustrious* before the mirror trials were held on board *Bennington*.

As a historical sidenote, Royal Navy Commander Nick Goodhardt developed

the mirror by using his secretary's compact mirror and lipstick. He screwed her lipstick up until just the red tip was showing, set it on a book in front of her mirror on the desk, and he held it. His secretary walked around his desk and followed the lipstick up and down. He noted that her chin touched his desk at the same place everytime. That's how the approach using the mirror was developed. We flew the mirror for years, then went on to the lens which is a superb system.

As far as comparing the system to today's landing aids, it's identical, except that the LSO used to have a rag to polish the mirror. Now, he only has to wipe off the lens. We've come light years, although we've killed a lot of people in the development of these devices. Our earlier cavalier attitude has given way to a more professional outlook.

**Approach:** Among the aircraft you flew was the Vought XF8U-3 Crusader III. While this advanced fighter lost out to the McDonnell F-4 Phantom II, many people consider it to be the ultimate single-seater. In fact, the plane's performance was never fully explored. What were your safety considerations in flying such a powerful aircraft?

**VAdm. Engen:** Wonderful airplane. Without a doubt, one of the finest aircraft I have ever flown. Let me give you a little philosophy about flying aircraft, and how man and machine need to come together. You need to be an extension of that machine; you need to know it cold, its capabilities and its limitations, and to feel absolutely comfortable with it. Another fine aircraft, one with beautifully harmonized controls, was the North American FJ-3 Fury. I could do an Immelman on takeoff.

In a clean FJ-3, if I had 210 knots when I crossed the fence after takeoff, I could do an Immelman, come across the top at 2,600 feet with about 125 knots, 4 knots above stall speed, and fly away. I had that down cold. I didn't do that maneuver without practice, a lot of practice. I did it on takeoffs so it would look spontaneous, but it wasn't. I knew exactly what I was doing.

**Approach:** That certainly is interesting, Admiral, but you couldn't get away with something like that today.

**VAdm. Engen:** No, of course not. But, again, you have to understand the system

at the time, and the mishap rate showed it. It was a mindset of those times. The people were not necessarily less responsible; it was just the way we flew.

I'm probably coming across as a little too cavalier. But, I repeat, those were different times and we developed our attitudes as we progressed. It's important that you understand about the period, and I have to be truthful. We've come such a long way from those previous days in aviation safety.

Getting back to the F8U-3, it flew like the FJ-3, except that the Crusader III had tremendous thrust. But, there were really bad duct problems. The duct would go critical, and you could feel this burble coming underneath your seat; it sounded like a 40mm cannon right between your legs. Dust would fly around the cockpit as you went Mach 1.6. We were limited to an IMN of 2.2. In a great engineering feat, Vought worked out the duct rumble in six weeks.

We were warned that if the plexiglas canopy turned milky, we should quickly slow down. If we didn't, the canopy would melt. The aircraft was accelerating as fast at 2.2 IMN as it was at 1.7 IMN. I think it would have gone 3.0. The fastest I flew the dash-3 was Mach 2.32, 700 KIAS, at 35,000 feet, on November 17, 1958.

There may have been risk involved in some of our test flying of the F8U-3, but we had to identify that risk. For instance, I was always wary of high "Q" – high dynamic pressure, or high airspeed at low altitude. I lost too many friends to that risk. High-speed flying below 10,000 feet is not very smart in my book. As we de-



After retiring from the Navy, VAdm. Engen served as the Administrator for the FAA. He often flew the FAA's Lockheed Jetstar.

veloped aircraft with high-speed capability, we lost a few people. I think we are smarter today; certainly, our aircraft are stronger.

I have always treated high Q with great respect. During one test flight in an F-4, I hit 935 knots at 9,000 feet. I was scared pea-green. I came down from 26,000 feet in a split-s and full burner. The risk was high and I didn't enjoy it very much. But, I had to do it to see if the Phantom would meet its design criteria.

**Approach:** With all that, Admiral, how do you relate your testing experiences in those advanced types to today's high-performance aircraft?

**VAdm. Engen:** You have to talk in terms of controllability and the part of the envelope you're working in. If you operate in the upper right-hand corner of any envelope, you increase the risk. Your time to react to an unusual situation is shorter, because the airplane is operating at the extreme end of its capabilities. If anything goes wrong, your chances of survival are diminished. Unless I was in combat, I would not operate in that area of the envelope, especially below 10,000 feet. High dynamic pressure can be very unforgiving.

**Approach:** What about low-level operations, where your mission takes you down that low?

**VAdm. Engen:** Well, I'm talking about flying at high subsonic and supersonic speeds. You've got dash capability, though, and if you have to go supersonic, you have to accept that risk. The odds of something going wrong increase, like a birdstrike, and you're operating in the part of the envelope that gives you limited flexibility. Now, I must stress the value of knowing your capabilities and limitations. Every pilot must know them. I spent my first years learning how to calibrate myself. I literally learned about flying in Test Pilot's School, even after eight years of flying in the fleet, in peacetime and in two wars.

I don't believe you achieve safety by being a timid pilot; you achieve it by being professional. Do not be afraid of the airplane. Know your airplane and its limits, and don't exceed them. Operate with confidence. Exceeding those limits is dangerous.

— Peter Mersky





Lt. E.L. "Whitey" Feightner in the cockpit of a VF-8 Hellcat. As an ensign, Feightner flew with VF-10, in the Guadalcanal Campaign. He gained four kills, and five more with VF-8. He retired as a Rear Admiral.

R.G. Smith



Grumman F4F Wildcat

**R**Adm. E.L. "Whitey" Feightner won his wings in 1942 and arrived at VF-10 in time to make the new squadron's first cruise in USS *Enterprise* (CV-6). He participated in the Battle of Santa Cruz in October 1942, and fought as a member of the Cactus Air Force on Guadalcanal. During his combat tours with VF-10, and later VF-8 in USS *Bunker Hill* (CV-17), Lt. Feightner shot down nine Japanese aircraft, and was awarded three DFCs.

After the war, he was an early member of the Blue Angels as well as a jet test pilot, participating in many areas of development including aerial refueling and carrier qualifications. He commanded VF-11, and served as CAG for Air Group 10 and Air Group 4.

As a flag officer he served a tour as Assistant Commander for Logistics and Fleet Support, and a subsequent tour as Deputy Director for Plans and Programs in NAVAIRSYSCOM.

*Approach:* During World War II, safety was mostly a convenience of the moment, with no formal programs like today's NATOPS. Can you tell us a little about how, as a young fighter pilot in combat, you thought about safety? Did it enter your daily routine?

**RAdm. Feightner:** We carried spare aircraft on the ship. There was never time

to completely ready them for flight. A couple of planes' guns froze up in the air because we didn't have time to clean out the Cosmoline preservative, a very thick grease that, as soon as you got airborne, congealed and froze. I remember being jumped by Zeros. My flight lead's guns froze up and he couldn't get off even one round. After that we were very conscious

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about the grease on the guns. Properly working guns were a definite safety concern for a squadron.

We were also concerned about barricade crashes and catching a "late wire" since you could hit your head on the gunsight. We had 11 arresting wires on the ships in those days, and from about the 8-wire on, if the pilot wasn't ready for it, you stopped so suddenly that you were thrown forward and bashed your head on the gunsight. I have a scar over my left eye because I hit the sight once after catching the 9-wire. That was a pretty sudden stop. I broke the glass in my goggles.

Our skipper, LCdr. Jimmy Flatley,<sup>1</sup> came up with the idea of chest straps secured directly to the seat and coming around our chests. That was really the forerunner of the shoulder harness. As far as I know, we were the only outfit to use such an arrangement.

We had another concern: during an arrested landing, one of our planes' guns fired. We changed our procedures after that. If you had fired your guns while airborne, you pointed your aircraft away from your formation with the gun switches off, and pulled the trigger to make sure that the guns would not fire again. We had a lot of shorts in the wiring at that time. Once the guns were charged it was important to make sure they were cleared prior to landing.

**Approach:** What were some of the concerns you had during the Battle of Santa Cruz and afterward, when the Navy shuttled its fighters and bombers from the carrier to the Marine field on Guadalcanal?

**RAdm. Feightner:** One problem we worried about then concerned flying from Enterprise to Henderson Field on Guadalcanal: we had lots of groundloops. The brakes were not adequately maintained aboard ship. The Wildcat was a bit top heavy, and if there was a crosswind, it was easy to groundloop. In fact, the Marines used to make fun of us because we'd often put two or three aircraft in the palm trees.

I have a distinct memory of Swede Vejtasa putting his prop completely through a palm tree. It really was a

<sup>1</sup> Capt. — later RAdm. — James Flatley commanded the U.S. Naval Aviation Safety Activity in 1953. The Safety Activity was renamed the U.S. Naval Aviation Safety Center in 1957, and the Naval Safety Center in 1968.



Ens. Feightner in Hawaii — May 43

problem, especially since we did not always have a warning that we were going ashore. (Lt. — later-Capt. — Vejtasa won the Navy Cross during Santa Cruz for shooting down seven Japanese bombers in one day. — Ed.)

**Approach:** Did they ignore servicing the brakes aboard ship?

**RAdm. Feightner:** Well, remember, when we caught a wire on the ship, then taxied forward, into the wind, we didn't need the brakes that much. There were

also many deck crewmen who man-handled your aircraft around. The brakes just did not get the attention they perhaps should have.

**Approach:** Wasn't the field at Henderson pretty rough, anyway?

**RAdm. Feightner:** It was terrible, Marston matting with crushed coral spread over the top. Sometimes we landed on grass fields and even on the beach, on the sand.

**Approach:** For the two months, October-November 1942, you were really just trying to stay alive and did not consider safety. Would you say, then, that in an all-out war that safety is a casualty?

**RAdm. Feightner:** No, not particularly. We concentrated on other aspects of safety. For instance, knowing we had a good chance of getting shot down, we paid a lot more attention to our parachutes, and to whether our plane's canopy would open so we could get out.

We were also concerned about what to do in case of a fire in flight. It was something we lived with constantly, something which was very likely to happen; we were shot up lots of times.

James B. Deneen, courtesy Aeroprint



Guadalcanal F4F Wildcats peel off on a Japanese formation

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We were very conscious of emergency procedures, probably more so than when we were not in combat.

**Approach:** *Could you apply your experiences to today's crews? Knowing procedures would be a priority, wouldn't it?*

**RAdm. Feightner:** Oh, absolutely. The real emergency procedures that you concentrate on the minute you enter combat, these things come to the fore. Such things as navigation become means of survival.

The YZ/YG direction and homing beacon we used to return to the ship was very reliable, but the ship sometimes turned the beacon off to confuse the

enemy. We operated in absolute radio silence most of the time. There was no chatter on the air. We did it all by hand signals.

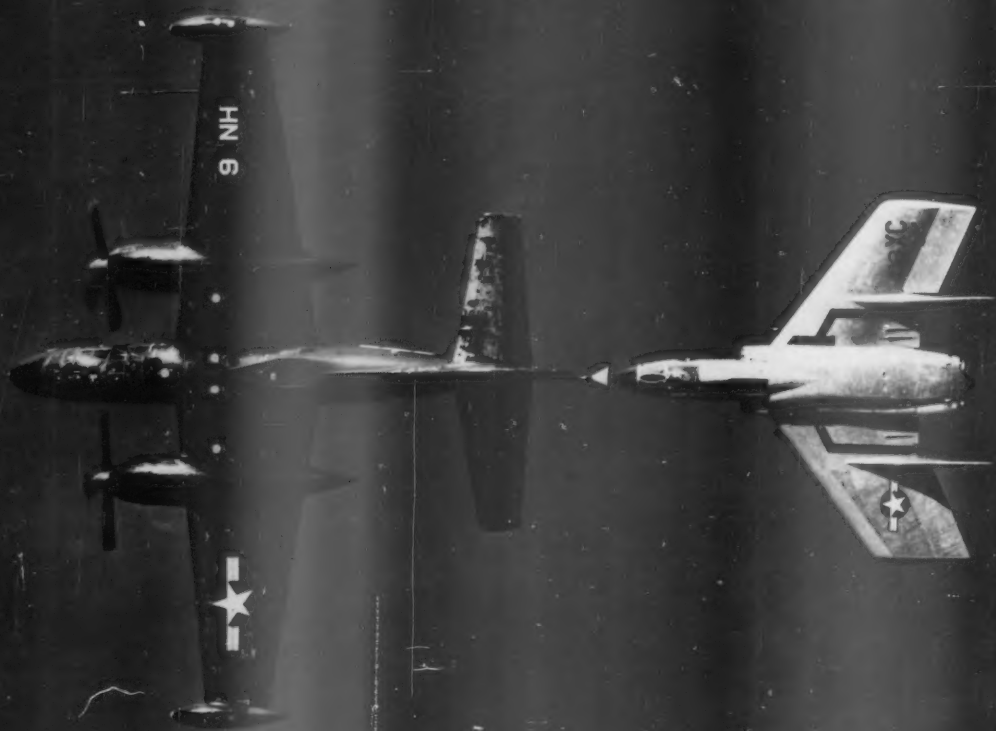
**Approach:** *Today's crews are also concerned about operating in EMCON, and sometimes getting into trouble.*

**RAdm. Feightner:** You can get into trouble if you don't have a set procedure. As a CAG, I went through a lot of exercises in EMCON. Sometimes, we sealed the radio with tape. It could only be used in an emergency, and if you broke the seal, you were eliminated from the exercise.

**Approach:** *After the war, you worked on*

*the first tests of the angled flight deck, along with RAdm. Alan Shepard. What were a few of your experiences?*

**RAdm. Feightner:** The angled deck was, of course, a new concept and we were concerned about crosswind, but we discovered it wasn't a problem. At first, it was difficult because we were all used to flying the approach and chopping the power as we got the cut. It got to be a little hairy. I remember Bud Sickel going over the angle in his XFJ-2, which was really nothing more than a navalized F-86. He dribbled off the end but he kept it in the air. There was 75 feet to play with before he would have hit the water.



An F7U Cutlass refueling from an AJ tanker



**approa**

# **REFLEC KEETEC**

**"Kills in combat are not produced  
but by avoiding or trying to m  
- Cdr. William P. "Willie" Dr**

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**"You're not going to get  
if you don't know how t  
cies." - VAdm. James B  
(Ret)**

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**roach**

# **CTIONS CTIONS**

**roduced by great moves,  
to minimize bad moves."**

**Driscoll, USNR (Ret)**

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**get back (from war)  
w to handle emergen-  
s B. Stockdale, USN**

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OR REPRODUCTION

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**"From a purely piloting  
tougher to bring a Banshee  
using a level approach with  
horizon, than landing on  
light." – RAdm. Alan B. S**

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"People ask me what my fear is  
the space shuttle. I tell them  
carriers at night in Vietnam  
much more than that.' I  
shuttle, my family's watching  
Hauck, USN

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**"Safety in combat is  
survival." – LtGen. Th**  
**(Ret)**

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ing standpoint, it was much  
anshee back aboard at night  
h with the deck moving and no  
g on the moon in broad day-  
**B. Shepard Jr., USN (Ret)**

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y family thought about my flying  
ll them, 'Hey, I flew off aircraft  
tnam. My family's gone through  
' It's just that when I fly the  
atching me on TV." – Capt. Rick

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**t is hard to separate from**  
**. Thomas H. Miller, USMC**

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**"You flew the Cutlass on  
until you had a problem.  
It took 11 seconds before  
control...I have more 'pa  
place aircraft than any  
E. L. "Whitey" Feightne**

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**"The first time I woke  
needed to improve our  
when I realized that we  
squadron in training and  
went to war." – VAdm. D  
(Ret)**

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**"Being a pilot not only  
to accomplish the job,  
you to stay alive!" – Se**

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s on the hydraulic system  
lem, which you often did.  
efore you had mechanical  
'passenger' time in single-  
any other pilot." – RAdm.  
ntner, USN (Ret)

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ke up to the fact that we  
our flying procedures was  
we killed 10 percent of our  
g and workups before we  
m. Donald D. Engen, USN

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only demands a lot of you  
job, it demands a lot of  
- Sen. John H. Glenn Jr.

**"We received a lot of ins during a bailout. I reme instinctively turned my a release the airstream pr leading to the ventral ment." - President Geo**

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"People ask me why I became an  
For one thing, I was very lucky;  
the chance came, I was prepared  
ham, USN (Ret)

Operation Pierce Arrow by R.G. Smith



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**f instruction about safety  
remember being hit and I  
my aircraft to the right to  
n pressure from the door  
tral gunner's compart-  
George H. W. Bush**

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**ne an ace while other guys didn't.  
cky; I had the chance. But when  
pared." – Cdr. Randy Cunning-**





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ABLE  
ON



I took both the F7U Cutlass and F3D Skyknight aboard. I made a lot of landings on the early angled deck in the F3D. The Cutlass was actually the easiest plane to bring aboard, other than the fact that you couldn't see directly forward on final. But in the F7U-3, we could raise or rotate the seat forward. I did a lot of work with special cockpit indicators where I could adjust the speed one knot at a time in, for instance, a high-drag configuration where I worked strictly with power to overcome whatever drag was present.

**Approach:** *You flew with the Blue Angels in 1952. Please describe a few of your experiences.*

**RAdm. Feightner:** I was actually assigned to the first team in 1946, but my orders were changed before we ever put on a show, and I was reassigned as an aide for CARDIV 3. During the war, the team formed the nucleus of VF-191 aboard Princeton, and the leader, Johnny Magda, was killed. After the war, I was asked to reform the team around the F7U Cutlass, but that was not practical. We couldn't fly the Cutlass in formation, because the hydraulic controls system was unreliable. The Navy had already made the announcement that the team would use F7Us, and we had to do it, at least for the two solos.

Vought painted a couple of F7Us in the Blue Angels colors, and we picked them up at the plant and flew them to Corpus Christi, where the team was based at that time. But we could not find any other experienced Cutlass pilots. About that time, we got F9F-5 Panthers, but they were soon grounded, so I took one of the F7Us, and got a previous member, Lt. H.C. "Mac" MacKnight, ordered back to the team. He and I flew the F7Us, while the rest of the team flew TVs, the Navy's version of the T-33. They gave people rides and put on little shows.

You flew the Cutlass on the hydraulic system until you had a problem, which you often did. It took 11 seconds before you had mechanical control, and that brought up some very interesting incidents. You were totally out of control. (I have more "passenger" time in single-place aircraft than any other pilot...I've lost the control system 75 to 100 times. It was a regular occurrence.) With the Cutlass, you had to bleed off pressure

before an interlock would activate and springs snapped into place; it took 11 very long seconds.

**Approach:** *That could be a problem, especially at low altitude.*

**RAdm. Feightner:** Very true. It happened on takeoff at Pensacola. We had SECNAV guests waiting to go out on a carrier. I put on a show in the F7U, and as I lifted off in burner, I pulled the nose up and lost the hydraulic control system. I was strictly a passenger as the plane went straight up in the air to 1,500-1,700 feet, stalled, and headed toward the ground. I sat there with no control, and the stick in my lap. Fortunately, everything connected back up mechanically in time for me to make a square turn at the bottom. There's some question as to whether I actually touched the ground. The plane was flying toward a row of trees that I couldn't get over, so I just cut a hole through them.

**Approach:** *You obviously didn't think about ejecting.*

**RAdm. Feightner:** I couldn't, not at that altitude, and with only one engine because you did not have enough hydraulic power to jettison the canopy; you would rob the control system. At that time, there was also some concern over whether you'd lose your feet when you ejected.

**Approach:** *Did you have any special safety considerations during the Blue Angels' early days?*

**RAdm. Feightner:** When we got jets, we decided that at low altitude, 400-500 feet, we did not have time to eject, and we told people to open, unsnap the seat belt before they ejected. At low altitude, things happen fast, and we didn't have an automatic seat belt.

**Approach:** *Wouldn't you have had a seat slap?*

**RAdm. Feightner:** Probably. When we had a four-plane midair in July 1952, one day before I left the team, only the tail-end Charlie's pilot ejected, but his chute didn't open. He was still sitting upright in the seat with his belt connected when we found him. He would have made it if he had loosened his belt.

In the Panthers, we also disconnected the red, fire-warning lights because they would falsely illuminate, especially while we were in a loop. That could be dangerous, flying that close together. We

depended on someone else in the formation telling us there was a fire. It was too much of a distraction in the middle of a maneuver at that low an altitude.

**Approach:** *In the February 1988 issue, we ran a story about "Escort Etiquette." As a CARGRU ops officer during the Enterprise's (CVAN-65) 1963 round-the-world cruise, under RAdm. Bill Martin, how did you handle overflights?*

**RAdm. Feightner:** We always intercepted the Russians with two aircraft, one in trail, while the other flew alongside. We used hand signals to direct them away from the ship. If they kept coming, we'd fire our guns. And, if they still kept coming – or if they opened their bomb-bays – we could shoot them down, although, fortunately, things never went that far. We never knew what they were going to do, and didn't want to take any chances. During our 1963 round-the-world cruise, we had a lot of planes try to overfly the task force, but we never had one get closer than 75 miles.

**Approach:** *As a flag officer, you were in on the ground floor of the F-14's design, including the controversy surrounding a gun for the new fighter. Please describe the discussion and the compromises that were finally decided.*

**RAdm. Feightner:** When the F-14 was first designed, it did not have a gun. The pilots objected, and since I was a design officer at that time, I decided to make a real plea for a gun. After several tries, VAdm. Tom Connolly, the DCNO (Air), pointed out that the gun and ammunition would weigh 5,000 pounds.

I said, "Admiral, why is it, when every fighter pilot wants a gun, we can't have one?"

After much discussion, he relented and we compromised. If the F-14 was used as a fighter, without the Phoenix, we would carry a gun. As an air superiority fighter, the F-14 would carry two Sparrows, two Sidewinders, and a full load of 20mm ammunition. If the plane flew in its fleet defense role with Phoenix, we had to acknowledge that it was in an overload condition. We designed the gun so that it would not affect the weight and balance of the aircraft regardless of the weapons loadout. Grumman did a good job with the design.

– Peter Mersky





**A**lthough well-known as one of the first astronauts (he made the first American orbital flight in February 1962) and as a senator from Ohio, John H. Glenn's experiences go beyond these two important areas. As a Marine Aviator, then-1stLt. Glenn flew F4U Corsairs in the Pacific during World War II and immediately after the war as part of the small Marine aviation presence in China.

During the Korean War he flew with VMF-311, one of two Marine jet fighter squadrons providing close air support (CAS) to the United Nations forces. He flew 63 CAS missions before making an exchange tour with the USAF's 51st Fighter Interceptor Wing flying F-86 Sabres. In June and July 1953, Maj. Glenn flew bomber escort and air superiority missions, eventually destroying three MiG-15s.

After Korea, Glenn planned a supersonic dash across the U.S. in the new Crusader. In July 1957, he flew an F8U-1P (RF-8A) from California to New York in three hours and 23 minutes at an average speed of 726 mph. Soon after his transcontinental dash, Glenn became part of the new astronaut program. When he retired as a colonel, John Glenn held five DFCs.

Senator Glenn's schedule is hectic, but he saved 15 minutes one busy day to talk with us. As he recalled his experiences in aviation, it was obvious how much he enjoyed talking about his life in the cockpit. The 15 minutes quickly stretched to 45.

*Approach: Senator, how soon after you got your wings did you find yourself flying the Corsair in combat?*

**Sen. Glenn:** Well, let me go back a little bit. I first started flying in the old civilian flying program when I was in college — you could get physics credit for it — so, I first soloed in '41 in a 60-horsepower Taylorcraft. When World War II broke

out, I volunteered and went into flight training. I got my wings in March of 1943. After a few shore transfers I wound up in an old F4F squadron at Kearny Mesa, which is now Miramar. It was sort of a tent city back in those days.

We took the squadron (VMF-155) to El Centro, trained there and got Corsairs before we went overseas. We were one of

the first squadrons in the Marshall Islands after the Marines took them. We never had any air opposition, although there were rumors that the Japanese were going to try and move airplanes back in. Our mission was mainly bombing the by-passed islands and keeping them down. We were up against heavy anti-aircraft fire. I was never directly hit by big stuff, but I did get hit five times. None of them were very big, but there were holes. So, basically, it was a year-and-a-half from the time I got my wings until I was in combat. Then I came back to the training command after the war and eventually went to Korea.

**Approach:** Did you notice any difference between the Marine Corps and Air Force

*approach to operations during your exchange tour in Korea?*

**Sen. Glenn:** Not at that time — this was during late '52 until the war ended in July of 1953. They were such different types of operations you really couldn't compare the two. That's one reason they had the slots for the Marines up there so we could get some air-to-air experience. What we were doing with the F9Fs was all deep interdiction or close air support. The Air Force was working strictly air-to-air. So, how you ran a squadron or a group was much different.

There were a couple of times when I was with the Air Force I did get to do some air-to-ground work. Some days the MiGs just

Courtesy of the artist and Aeroprint, Spofford, NH 03462.



First Swept-Wing Encounter by Keith Ferris



Maj. Glenn brought his F9F back after a 1953 mission in Korea.



Maj. John Glenn in the cockpit of his Vought F8U-1P Crusader.

didn't fly. We'd just sit and grind around on our figure-eight screen patterns. If there were no reports of MiGs, we dropped down and strafed targets-of-opportunity rather than waste the gas. That's what I was doing one day on the CO's wing when he got hit by anti-aircraft fire while we were strafing some trucks. To get back to your original question, the F9F was the heavy-duty workhorse, while the F-86 was kind of the glamor, go-get-'em jet of the day. It was completely different flying and it's very difficult to compare the two missions.

**Approach:** Let's talk about the F-86 versus the MiG-15. The two aircraft were very similar in appearance. Did you ever worry about "blue-on-blue" situations?

**Sen. Glenn:** Getting an early ID was a problem. In fact — this sounds kind of silly today — we used to carry binoculars. I still have mine at home. If we're going to a ballgame and I ask Annie to bring the "MiG glasses" she knows which ones I'm talking about. Anyway, I carried those. They used to hang around my neck. If I really got into a scrap, I just tucked them into my vest so they didn't bang around and hit me in the face. I used to practice with them between flights, trying to get them in the exact piece of sky I wanted on the first attempt, sort of like shooting from the hip with a gun. It's funny, but I got very proficient at it.

The difference between the two airplanes nose-on was the MiG-15's wing attached to the fuselage about half-way up whereas the F-86's wing was on the bottom of the fuselage. I got real good at spotting the difference at range and never ran on friendlies as a result. There was a lot of that going on, though. You'd hear it on the radio sometimes.

**Approach:** What kept you alive in those days? This was pre-NATOPS, pre-RAG concept. LtGen. Tom Miller, former DCIS (Air), told us safety was pretty much up to the CO of a squadron.

**Sen. Glenn:** Safety was left up to individual commands back in those days. Of course, in combat, you're out for a specific purpose and safety sometimes takes second place, but you're still safety conscious. I think Tom's right. It depended much more on the individual CO, what he demanded of his maintenance department, and whether he had an Ops Officer that

really ran a tight ship. I was Ops Officer in several different squadrons. If guys showed up bleary-eyed the next morning or whatever, I'd ground them. Guys would get livid, but eventually they'd understand that kind of behavior was not going to be tolerated. They could either fly or watch the war from the sidelines.

**Approach:** *Did you have any habit patterns that worked for you, that perhaps other guys might not have used?*

**Sen. Glenn:** I think I just had a professional attitude toward the whole thing. I was very serious about flying. I was staying in, making a career out of it. I wanted to be the best there was, and that meant I needed to take a very professional attitude toward it. I didn't take anything for granted about knowing how an engine works or the altitudes on fuel curves. I could see those things in my sleep. I think everybody who cared about what they were doing did the same thing. We didn't take chances on safety things. That's true of all good pilots, I think. Of the "Smilin' Jack" pilots, I'd say at least three-quarters of them are dead. That's not to say we were so super-safe we didn't do anything – quite the opposite. But, the guys who had a very flippant attitude toward flying aren't with us anymore. I don't think it's a coincidence it happened that way. I think it's cause and effect.

Professionals, whether they're doctors or dentists, try to know everything possible about their profession. Being a pilot not only demands a lot of you to accomplish the job, it demands you to stay alive! That's true in peace or combat. As hokey as the movie "Top Gun" was – I loved it, saw it several times – it did bring out one important point: If you don't feel you're the best in the business, you'd better go drive something else. Part of feeling that way is knowing everything there is to know about the airplane and the threat. That's even tougher today. What I had to know about the F-86s or F9Fs, for instance, is pretty elementary stuff compared to what you guys have to know now. **Approach:** *Let's talk about the F-8, specifically "Project Bullet."*

**Sen. Glenn:** I could fill this whole interview with stories about the Crusader. I

<sup>1</sup>"Smilin' Jack" was a U.S. aviation-adventure comic strip drawn by Zack Mosley from 1933-1973. Its hero, "Smilin' Jack" Martin, was always involved in daredevil, crime-fighting aerial exploits. – Ed.

came back from Korea and went to Test Pilot Training, TPT in those days, not TPS. I was there for about four years. I came out of there and was assigned to BUAIR as the Class Desk Officer for the F-8. That's how I got temporary duty to do the cross-country speed run, which was a little fancy maneuvering in itself.

We lost an airplane practicing for Project Bullet. We couldn't get the Air Force to launch any tankers so we had to use an AJ Savage. The AJ had two big prop engines on the wings and a jet engine in the fuselage. It took jet fuel in the belly and AVGAS in the wings. We were practicing just north of Dallas. The AJ could fly at about 29,000 feet max with a load of fuel. I'd come screaming in with the F-8 and slow down as quickly as possible so I didn't lose any time. I'd just plugged and was taking on a little fuel when the AJ's right engine started spitting black smoke. I knew something was wrong so I backed out of the drogue and went off to one side. The left engine started doing the same thing. Both prop engines were putting out black smoke. The jet engine was going full blast, but that wasn't enough to keep the thing airborne. I followed them down to 3,000 feet and they transmitted they were going to have to bail out! They couldn't keep the thing up. Here I was off to the side, watching these three guys come piling out of the AJ. The airplane had a full load of fuel when it hit so it looked like an atom bomb on impact. I called Grand Prairie to get the choppers to pick them up. Fortunately, nobody got hurt. The accident investigation revealed the line guys had put jet fuel in the AVGAS tank.

**Approach:** *Let's shift gears to the NASA years. What appealed to you about the space program at first?*

**Sen. Glenn:** There were rumors about manned space flight while I was at BUAIR. I was interested in seeing whether or not I could get into it. We had a couple of projects that came through on orbital mechanics and re-entry. The simulators were being run down at Langley. They wanted somebody who had had high-speed test-flight experience to come down and be a guinea pig every two or three weeks for a day or so and try running some of these things on a little simulator they had hooked into an analog computer, which was brand-new at the

time. I talked to the captain and managed to get assigned to some of that stuff.

When they set the criteria for the space program, I fit the profile and my card dropped out with 130 other guys. They narrowed that field down to 32 and put us through all the different physical and psychological tests.

**Approach:** *Speaking of hokey movies, how about "The Right Stuff?"*

**Sen. Glenn:** That wasn't my favorite, although the general theme of the book – the idea of test pilots and early astronauts as a breed of people out against the elements – had some validity. We had an awful lot of people killed at Pax when we were doing work on the early jets. We had a lot of weird things happen. We lost 13 guys out of about 70 pilots doing the test work during my time there.

**Approach:** *What about the relationship between the astronauts and engineers during the early days? Was it as adversarial as the film portrayed?*

**Sen. Glenn:** Bob Gilreuth ran the Space Task Group, STG, as it was known. At the first meeting we had with him he told us we were all experienced test pilots with more practical experience than the engineers. Anytime we saw anything that looked unsafe or if we wanted more tests run, he wanted us to let him know. And we did. He always backed us. It wasn't something we abused – we didn't ask for new tests on everything under the sun, but it goes back to what I was saying about professionalism. It was part of making sure that you had thought of everything that might happen and what you were going to do if it did happen. That's just part of taking a professional attitude toward flying in space or anyplace else.

You know, people always tell me that they've just started flying or they've just soloed. I tell them to either get out of it or make up their minds to keep going until they get their instrument ratings. So many people in private flying get bagged because of weather and a lack of instrument knowledge. Usually the equipment doesn't quit; it's pilot error. The same thing all too often is true in the military, although you guys have got unbelievably low mishap rates today. The lifetime rate on the Crusader was 46.6. What you're doing now, 2.5 or so, that's unbelievable.

– Lt. Ward Carroll



NASA



EDDCE T 38A 11-11-88

In the front cockpit of a NASA T-38, Capt. Hauck prepares for a training flight.

**C**apt. Frederick Hauck was mission commander of *Discovery*, which put America back in space on September 29, 1988. This was his third space flight for a total of 436 hours in space. He went to NASA in 1978 following a distinguished career in the Navy with 5,500 hours flight time and 114 combat missions. In the early 1970s, Captain Hauck spent three years at the U.S. Naval Air Test Center, NAS Patuxent River, Md., as a project test pilot and team leader. He was Operations Officer to Commander, Carrier Wing 14 aboard USS *Enterprise* (CVN-65), where he flew A-6, A-7 and F-14 aircraft. Selected for command, he was Executive Officer of VA-145, an A-6E squadron at NAS Whidbey Island, Wash., just before being selected for astronaut training and assignment to NASA. Captain Hauck left NASA in March 1989 and went back to the Navy as Director, Navy Space Systems (OP-943) on the staff of CNO, Washington, D.C.

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**Approach:** *Let's talk about your experiences as a fleet attack pilot and at NASA. How do they compare along the lines of staying mission-ready?*

**Capt. Hauck:** There's an obvious trade-off. In order to be mission-effective, you must have trained in the environment in which you are going to fight. It's a continuous trade-off; for instance, going out in an A-6 flying low-level at night and practicing SAM breaks. That's a dangerous environment. The important thing is to get to the point where you have the ability and expertise. But it needs to be done in a measured way. Don't try to bite off too much too soon, but get to that point of fighting your aircraft the way it

needs to be fought.

**Approach:** *How does that relate to NASA?*

**Capt. Hauck:** We only have three space shuttles. We're building a fourth. We've got to be extremely careful. It's a very valuable asset. It costs \$2.3 billion to build a new one.

**Approach:** *And we thought Tomcats were expensive...*

**Capt. Hauck:** Yeah, that's right. We cannot afford to have another Challenger. The Challenger accident was preventable. There are lessons learned that you could learn from any mishap. *Approach* magazine, for instance, is very good at presenting those lessons learned. One of

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the lessons learned from the Challenger mishap was that you need to be very good at communicating. There is a need for commands to encourage discussion. That's part of the CO's obligation. He needs to provide an atmosphere that permits two-way discussion. He needs to keep his ear open to the junior officers and listen to their concerns, especially as it applies to safety.

**Approach:** *We say NATOPS is written in blood. How did Discovery change as a result of Challenger?*

**Capt. Hauck:** There were some concrete changes. Again, much of it had to do with communication. We tested Discov-

ery exhaustively before we flew. We made a lot of changes, not just to the solid rocket boosters. We made more than 1,000 hardware changes. When I say "hardware," I don't mean 1,000 nuts and bolts; I mean 1,000 modification kits. We made more than 400 major software changes. It took two-and-a-half years. It's really expensive to have that asset lying idle. That's where the parallels (between NAVAIR and NASA) are harder to draw. You can't afford to have your war-fighting machine idle for two-and-a-half years.

**Approach:** *Even with Gramm-Rudman...*

**Capt. Hauck:** (laughs) Even with



Capt. Hauck rehearses putting on his new orange partial pressure suit near the end of STS 26. (NASA Photo).



Discovery on Approach to Edwards by Stan Stokes. New Masters Gallery, Carmel-By-the-Sea, Ca.

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After completing a four-day mission, the five Shuttle astronauts pose with President Bush in October 1988. Capt. Hauck (third from left) was the mission commander. (NASA Photo).

Gramm-Rudman – you’ve got it.

**Approach:** *Has Discovery now become the way you do business each time, or is each flight so unique that it is impossible to do that?*

**Capt. Hauck:** You’d like to think we did that each time. You need to be meticulous in the space business, and I think we are. Another difference between how we fly airplanes off the ship and how we fly the shuttle is to have a great deal of data coming back to Houston to monitor the health of the shuttle. We sleep up there, eight hours a night. All of us are asleep at the same time. The people in Houston know more about the health of our machine than we know. However, we do have a very good caution and warning system in the shuttle.

**Approach:** *Is there a PCL (pocket checklist) for the shuttle?*

**Capt. Hauck:** That’s an interesting point. When I got to NASA in 1978, there was no PCL for the shuttle. Admiral Truly, who was a senior commander at the time, recognized the need for one. That was my first task with NASA. I brought an F-14 PCL from home. I had another guy bring in an F-15 PCL and a T-38 PCL.

We asked each other what features we

liked about each PCL. The space shuttle PCL is an offshoot of those. It’s tabbed like a Navy PCL and sub-tabbed like an Air Force PCL. We have PCLs for each phase of the mission, one for launch, one for on-orbit and one for the re-entry phase. When you’re on launch, you can’t do the same type of things you can when you know you’re coming back to land. It’s phase-dependent.

**Approach:** *Is there boldface?*

**Capt. Hauck:** We don’t memorize, in general. Perhaps I shouldn’t say that. We actually do. There are some things that you do instinctively because of the level of training. There are very few things that we do that can’t wait 10 seconds. Our PCL is digested even more for launch and recovery. We velcro cue cards next to the windows. We don’t have any of our emergency procedures in the software yet (like an F/A-18) because we don’t have the space.

**Approach:** *How would you rate NASA’s overall safety record? Were the mishaps pretty much the cost of doing business?*

**Capt. Hauck:** No, I won’t admit to that because Challenger should not have happened. If I said that, it would be like saying we couldn’t have avoided it. We could have avoided it.

It’s different when you’re working with only three or four assets. We cannot afford to be less than perfect with a \$2.5 billion dollar machine. Let’s face it, you can’t have perfection, although you should try for it as we do in Naval Aviation. Naval Aviation is much more demanding on the aviator than flying in space. That’s a good comparison to make.

**Approach:** *Are you referring to from three-quarters of a mile on in, or in general?*

**Capt. Hauck:** I think in general. We have so much support, and our training is so exhaustive...when we go to fly, we are trained to the Nth degree. We are trained much more than the Navy could afford to train its pilots. It’s almost as if you’re depending even more on the professionalism, intuition and good judgment of the Naval Aviator. It’s an interesting contrast. People ask me what my family thought about my flying the space shuttle. I tell them, “Hey, I flew off aircraft carriers at night in Vietnam. My family’s gone through much more than that.” It’s just that when I fly the shuttle, my family’s watching me on TV.

— Lt. Ward Carroll



In 1960, Lt Col. Miller set several performance records with the F-4 Phantom.

**L**tGen. Thomas H. Miller is one of a unique group of military aviators with combat experience in three wars: World War II, Korea, and Vietnam. He established a number of performance records with the F-4 Phantom, including a speed record of 1,216.78 mph, on September 5, 1960. Then-LtCol. Miller went to Southeast Asia as XO of MAG-11(Forward) in April 1965. He subsequently served as the CO of the group.

Perhaps Gen. Miller's greatest single contribution to Marine Aviation is his early sponsorship of the AV-8 Harrier program. In 1968, Col. Miller and LtCol. Bud Baker traveled to England to see first-hand the new British V/STOL jet. The Marine Aviators' conversion was quick and total, and they returned full of enthusiasm for the little "jump-jet" and the technological breakthrough it represented. The success of the AV-8A, and its successor, the AV-8B, is now a matter of record, and the Harrier II is one of two main fixed-wing aircraft that will serve the Corps well into the next century.

Gen. Miller's last tour was as DC/S(Air) from 1975 to 1979. During that period, he participated in the ongoing development of the AV-8B, as well as the introduction of the F/A-18.

Now retired, Gen. Miller continues to actively participate in Marine Aviation matters, and also flies his own Beech Baron. *Approach* interviewed the general during a quick visit to NAS Norfolk.

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**Approach:** As a young Marine Aviator in the later stages of World War II, flying the F4U Corsair, did you think much about aviation safety?

**LtGen. Miller:** From the time I entered aviation, safety meant survival. We mixed our efforts to be safe aviators with the motivation to be aggressive. Sometimes these concerns were in conflict and it became a matter of judgment. I was apparently successful: I'm still alive after all these years.

My squadron commanding officer in World War II was very safety-conscious. We had very tight discipline and we were told immediately about things we were doing wrong. We had eight-hour sleep requirements, and did not fly after drinking. Today, things are more organized at a higher level, with activities like the Naval Safety Center and NATOPS. In World War II, safety depended on the squadron commander and how he ran the squadron.

We were stationed at Midway for a time. Things were tense out there in early 1944 when the island was the main submarine base for the Pacific. We kept a Marine fighter squadron there to protect the island from a surprise attack. We were a new squadron with a lot of inexperienced aviators. Wind conditions weren't always ideal, and we were in scramble positions, with all flyable squadron aircraft manned an hour before sunrise. Pilots sat in their cockpits, in the revetments, armed and



As an F4U Corsair pilot in 1944, then-1stLt. Tom Miller flew interdiction missions in the Marshalls.

ready to go. In the evening, the same thing, an hour before sunset. All day, we kept eight aircraft on five-minute scramble alert.

When a scramble was called, it was the pilots who got to the aircraft first who took off. That created some pretty unsafe conditions, such as jumping into the airplane without fastening your safety belt. The skipper quickly found out about it and reprimanded us.

**Approach:** Did you consider safety in combat?

**LtGen. Miller:** Safety in combat is hard to separate from survival. In close air support, there are things you can do to make it more difficult for the guy on the ground to shoot at you. We studied these methods all the time, and talked amongst ourselves constantly. Teamwork is at the heart of the vastly-improved Navy and Marine Corps safety record.

**Approach:** You set several performance records in the F-4 Phantom. How did you prepare for these flights?

**LtGen. Miller:** I was the class desk officer, and I knew the aircraft, from a technical standpoint—power plants, fuels, hydraulic and pneumatic systems—probably better than any other pilot, aside from the company pilots. Of course, therein is one of the secrets of safety: know your aircraft and its systems.

We built up to those record flights slowly. We didn't just blast off and try to do it. We ran the course at slower speeds so we could study the turns with the engineers. We discovered certain unknowns with the Phantom during high-speed turns. The afterburner plume and heat at high speeds widened and affected the horizontal stabilizer and tail. The heat approached temperatures that were destructive to the metals.

The same situation developed with the canopy when we flew at Mach 2 and above. We had a jig of crossed lines that sat in the pilot's seat after the aircraft landed. We photographed these lines through the canopy, then compared those with photos before takeoff to discover what optical distortion had occurred during the flight. We found that distortion would occur before the structural integrity failed. We changed three canopies in the 16 or 17 preparation flights before the actual record attempt.

We set the record three times. The third flight, on Labor Day in 1960, had the highest speed. But, the plexiglas on the side panels—the windscreen was very thick, bullet-proof glass—was distorting from the heat. We changed the panels.

We found we had to make changes in the fuel management system. I had to take off with as much fuel as I could because the plane was burning so much. I took off from Edwards with three external tanks: the main centerline tank, and two outboard tanks. The 600-gallon centerline tank had been cleared for supersonic flight; the two outer 370-gallon tanks had not been cleared. (Frankly, I'm not sure we could have gone supersonic with all three tanks.)

I burned the fuel from the two wing tanks, and, as I turned over the Chocolate Mountains, I pickled off the two outboard tanks. I accelerated and headed toward Edwards where the entry gate was for the record run with the 600-gallon tank.

Then we had a problem about how to get rid of the centerline since it had never been dropped supersonically. Military pilots are not permitted to do things first; that's what we pay contract pilots for. We didn't have time for contractors and we had to go back to Washington, to VAdm. Robert Pirie, the DCNO(Air). We got a waiver so we could make the supersonic drop.

**Approach:** What were some of your safety considerations during your command tours?

**LtGen. Miller:** By that time, the Navy had the NATOPS program as the focal point for safety, but there were always flaws; I remember a pilot followed NATOPS and lost an airplane because of an oil leak. The engine oil also drove the constant-speed generator. If the generator failed, NATOPS said to shut the engine down. This young pilot took off at night, in heavy fog, in a heavily-loaded F-4. He had to shut an engine down while he was still heavy. He made a GCA back in, got too slow on one engine, and spun in. He and his RIO safely ejected, but we lost the airplane.

Thereafter, we changed the rule. We would now relight the engine and take a chance on burning the engine up because we wanted to get the aircraft on the ground.



Also during my tour as a squadron commander, we had LSOs even though we didn't go aboard carriers that much. However, I believed that Navy and Marine pilots should land on land just as they do on a ship. Then we don't have to spend so much time re-learning how to land on board ship.

From the group standpoint, we had staffers who followed up on the squadrons and their NATOPS programs. We also took the group LSOs and put them on the end of the runway to observe operations. We all have our pride about not taking a waveoff or missed approach, but this method quickly eliminated this emotion because you could more afford to dent your pride than your aircraft.

**Approach:** As one of two Marine Aviators sent to England in 1968 to observe VISTOL developments with the Harrier,

*you became an immediate convert to this new program and recommended U.S. involvement. Now, 20 years later, with the Falklands experience and the continuing introduction of the AV-8B, your early support for the Harrier seems vindicated. Could you discuss your early VISTOL experiences?*

**LtGen. Miller:** As a Marine Aviator, I have always believed that the only reason for Marine aviation was to make sure that the young Marine on the ground accomplishes his mission with the fewest possible casualties. During World War II, I didn't have a chance to help the man on the ground because our mission was mainly interdiction.

It was a different story in Korea. Out of a total of 106 missions, I flew 57 in a close air support role. I had a chance to observe both on the ground and in the air

how valuable CAS was. I saw many young Marines whose lives were lost without CAS, and I saw many who were saved that had been given up because there was CAS.

In Korea, we proved the theory of vertical flight and its value to the Marine ground mission using helicopters. We knew with the advent of nuclear weapons that amphibious assault forces could not survive in a nuclear environment. The operation had to move quickly. That's why landing craft went out the window and the helicopter entered the picture.

In Korea we recognized the VISTOL concept of moving weapons and men, but we didn't have the fixed-wing aircraft to support that mission. We developed the aluminum airstrip, the SATS, so we could move our aircraft as quickly as we could fly them in to support the Marines on the

R.G. Smith



The AV-8B Harrier II has become the backbone of Marine CAS. In the late 60s, Col. Tom Miller became an early convert to the developing program of VISTOL and persuaded the Marines to recruit the AV-8A.

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ground. But it still took time. In the early 60s, we wrote the requirement that all our aircraft should be V/STOL as soon as we had the technology. That's what drove us toward the Harrier.

The U.S. had had many failures in V/STOL development for various reasons, one of which is we tend to get too sophisticated, too fancy. The British, on the other hand, are probably the more unsophisticated types. They take the simplest form and use it. They add the frills as they go and as they can afford it.

**Approach:** What caused the early problems with the AV-8A, especially the high mishap rate?

**LtGen. Miller:** In the very early stages, we *didn't* lose many aircraft. We began losing pilots when we began encountering the "elite pilot" syndrome generated by the first Harrier pilot selections. We had a lot of Patuxent test pilots in the first Harrier squadrons. We only took pilots who had flown A-4s, no A-6 or helicopter pilots. The pressure mounted to include pilots from the other communities.

A pilot adjusts quicker in the younger years. If you train a man in helicopters, then try to put him into another type when he's 30 years old, you have an accident waiting to happen. First, he doesn't learn as fast, and he doesn't get out of old habits he's acquired. His response time is also increased. He may show you that he has everything under control, but when he's by himself, and the pressure builds, he may crack.

I knew we would eventually have to let other folks in, gradually. We were far better off to pull someone right out of flight school who had gone through A-4s in training, than to take someone older who had flown OV-10s, A-6s, or helicopters. He just wouldn't adjust as quickly.

**Approach:** Would you say you were disorienting him?

**LtGen. Miller:** Yes. Helicopter flying requires certain skills that the jet pilot doesn't have. Under some conditions, the jet pilot can overreact, too quickly. It's the same way with C-130 pilots. Keeping aviators in the same community may be good for safety records, but that doesn't always make things good for the people or their morale. We have to consider that in the Navy and Marines, too. There was a time when we couldn't keep people in

helicopters. We kept them in the field for long periods. They didn't see their families, or were living in tents while the fighter pilots were all in the BOQ at night.

**Approach:** As DC/S (Air) in 1975-1979, what were your concerns for Marine Aviation as a whole, especially since the search was on for a Phantom replacement and the F/A-18 program was encountering problems?

**LtGen. Miller:** All of us use our own experiences. In Korea we did a lot of CAS, with the Army and Commonwealth forces. I became a strong proponent of what aviation could do. In Vietnam, I was in Phantoms as the XO, then CO, of the MAG(Forward) in April 1965. We had a multiple mission which included air defense and CAS.

I had some experience with helicopters — although I never went through the training. I was at Patuxent during the early development stages in the late 40s. I had had one Washington tour as the desk officer for F-4s, and another tour as a weapons development officer.

When I became DC/S(Air), I followed through on many of the projects that I started as a colonel, the Harrier and CH-53E. We also tried to improve the AH-1 as an attack ship and "fighter" helo. We worked on replacing the C-130, but the cost of that program was too high. We wanted USAF C-141s with refueling apparatus. Four 141s could have done what 18 KC-130s did during a TRANS-PAC to Hawaii.

In 1976-77, the CH-46 was no longer in production and we needed a replacement. We looked long and hard at what was available. We dismissed the Army's H-60 because it didn't carry enough troops for the amphibious mission. The CH-53E was too big and its LZs had to be too large. The helicopter's maximum speed is limited to around 200 knots. Modern warfare is such that we couldn't let that speed limit our conduct of the mission. The Canadian CL-84 tilt-wing looked promising. NASA and the Army had also started the XV-15 program and that looked interesting as well; we couldn't find anything wrong with it. However, cutbacks forced curtailment of the XV-15 program. When we found out about that, we went to the Navy Department.

NAVAIRSYSCOM worked with us to revive the XV-15 program. All three service secretaries signed an agreement for a four-service aircraft, which became the V-22 Osprey.

**Approach:** What about the F-14 program?

**LtGen. Miller:** I felt that the Marines should have stayed with the F-14, but that was before I returned as DC/S(Air). We needed a great improvement in the F-14's thrust, but it would have made an outstanding attack aircraft. It's swing-wing is ideal for an attack mission.

**Approach:** Did you have any specific concerns about the F/A-18, its range, for instance?

**LtGen. Miller:** Marine air doesn't have a long-range attack mission. We usually plan for no more than a 300-mile radius. The Hornet's range problem was not a problem for the Marines. I flew the YF-17 prototype, and was convinced the redesigned F/A-18 would be one of the safest aircraft we've ever had. I think current figures bear me out. The Hornet is a very honest airplane with no tricks, especially at high AOA.

**Approach:** Were there other programs you addressed as DC/S (Air)?

**LtGen. Miller:** Yes. We started MAWTS at Yuma in the interests of safety, training as close to the margins as possible in the safest environment. The helicopter folks became concerned with defensive maneuvers with little knowledge of the structural integrity of their aircraft. CH-46s doing fighter-type maneuvers became a problem. I had to curtail their enthusiasm until we could be safe. I stopped their activities until company contractors could check the structural limitation. The Cobra and Huey were OK, but the CH-46's parameters had to be redefined. With a group of closely-disciplined instructors at MAWTS we accomplished that.

The Marines have the finest, hard-charging aviators we could ask for. We need to temper that enthusiasm with training. The closer you train to combat the more discipline you need. Once you enter combat, you can pull out the stops to accomplish the mission and help the crews survive. That's why these gunnery schools and weapons training schools are so important.

— Peter Mersky

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Alan Shepard in the Capsule Cockpit by Ted Wilbur  
(c) 1970, Smithsonian Institution, Washington, D.C.

**A**lan Shepard is best known as the first American into space. On May 5, 1961, he made one sub-orbital circuit of the earth. Ten years later, in February 1971, he walked on the moon, as the commander of Apollo 14.

Less well known is the fact that Alan Shepard was also a Naval Aviator. He served with VF-42 and VF-193, making several deployments to the Med and western Pacific. In 1950, he graduated from the Naval Test Pilot School at NAS Patuxent, and participated in several development programs, including aerial refueling and the angled deck.

After retiring from the Space Program and the Navy, RAdm. Shepard became a successful private businessman. We caught up with him during the Naval Aviation Museum Foundation's Space Symposium at Pensacola.

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**Approach:** At the beginning of your aviation career, NATOPS and the Naval Safety Center did not exist. Did you have any organized safety programs or was it mostly gouge and seat-of-the-pants flying?

**RAdm. Shepard:** In my early days, particularly with my test pilot work and also with the space program, we didn't have things like simulators, so it was a lot of seat-of-the-pants stuff. I think the one thing that saved us, though, was having the discipline not to press the limits of a new aircraft right off the bat. There's always a tendency when you're put in a new hot rod or new automobile to see what it can do, to really ring it out. In the test-pilot business it's a more methodical approach. I'm sure you know the old expression, "There are old pilots and bold pilots but no old, bold pilots." That certainly applies. That attitude not only kept me alive during those days but also provided a basis for the astronaut program later.

**Approach:** In 1949 the first emergency ejection occurred from a F2H Banshee, which happens to be one of the jets you flew. How did you feel about the ejection seat, since it was basically an untested piece of gear at that time? We've heard that many pilots kept the seat pinned.

**RAdm. Shepard:** My feeling has always been that you have to go along with the invention and improvements that are made. You've got to trust the "white hats," the engineers and designers. If you're involved in the development, as I was, you've got to make them like and respect you. You've got to inspire them. Beyond that you have to take your chances. Obviously, I don't have anything against inventions and new ideas. I've been involved in pushing out the frontiers for over 30 years. You can't quarrel with those things. You still have to rely on the people.

**Approach:** Was the ready room feeling that "It must work because otherwise they wouldn't have put it in the jet"?

**RAdm. Shepard:** I think there's always doubt about new things. I remember, when I was a young pilot, how I reacted against simulators. As I matured, I realized that any training you can get prior to being in the actual environment is good. The space program would not have



During desert survival training in 1960, LCdr. Shepard (c.) poses with the other six original astronauts. Left to right, L. Gordon Cooper, M. Scott Carpenter, John H. Glenn, Alan Shepard, Virgil I. Grissom, Walter M. Schirra, and Donald K. Slayton. (NASA Photo)

such highly trained people without simulators.

**Approach:** The angled deck was developed in the early 1950s, and made for a safer environment around the boat. How were you involved with the development and testing?

**RAdm. Shepard:** I was one of four guys at TPS who was chosen to do the acceptance work on the *Anietam* (CVA-36) when it first came out. Whitey Feightner had the F7U Cutlass, Bud Sichel had the XFJ-2 Fury, "Gorgeous" George Watkins had the swept-wing F9F-6 Cougar, and I had the F2H-3 Banshee. The four of us did all the angled deck trials, catapulting and landing, day and night.

**Approach:** Was it love at first sight?

**RAdm. Shepard:** You could see the advantages of it right off, particularly when you combined the angled deck with the descending approach. This was opposed to the level pass. People always

say to me, "Gosh, it must be wild landing on the moon." From a purely piloting standpoint, it was much tougher to bring a Banshee back aboard at night using a level approach with the deck moving and no horizon, than landing on the moon in broad daylight.

**Approach:** Pilots joke that the fresnel lens is only a crutch for bad deck spotting. Did you feel the same way about Paddles, or was your scan: LSO, lineup, AOA? In other words, were the LSO's signals doctrine or a backup?

**RAdm. Shepard:** It was sort of advisory until you got into the final 15 degrees. At that point, you really relied on him, particularly at night. You can't see the deck pitching very much at night. You can't judge your altitude, so we really relied on him to give us fine alignment and deck position. When we went on liberty we were always good to the LSOs. We bought them a lot of drinks.

**Approach:** Tell us about your early work with the in-flight refueling system.

**RAdm. Shepard:** TAC test had the first XAJ-1 Savage with the first British in-flight refueling system. We used an F9F Panther and an F7U Cutlass. I did an airshow in Dayton flying the Panther.

**Approach:** What type of probe did it

<sup>1</sup> Then LCdr. E.L. Feightner was a World War II ace, early member of the Blue Angels, and jet test pilot. He retired as a rear admiral. (See interview on page 14.) Lt. H.G. Sichel was an early test at Patuxent and was involved in development of the early XFJ-2 Fury, including spin research and aerial refueling. Lt. George C. Watkins was also a member of the early Patuxent test pilot group, and, in 1958, set a world altitude record of 80,000 feet in a Grumman F11F Tiger. — Ed.



have?

**RAdm. Shepard:** Straight, non-retractable. We did a lot of dry plugs. The British design wasn't that good. It took us a while to get the airflows sorted out before we actually started transferring fuel.

**Approach:** Did you lose many baskets?

**RAdm. Shepard:** We lost some hoses. If things got hairy we'd just back out. My refueling tests weren't nearly as tough as landing on the boat at night.

**Approach:** Let's talk about the space program. In *Naval Aviation* it's generally felt that the aviator is ultimately the one responsible for his safety. Tom Wolfe's book, "The Right Stuff," gave the feeling that the only ones concerned with safety were the Mercury astronauts themselves. Was this true?

**RAdm. Shepard:** Let me be brutally frank about Tom Wolfe's book, and also the movie. From an outsider's standpoint both are entertaining and interesting. They tell a good story. But from the standpoint of fact, and the personalities described, he was so far off in so many cases that, aside from being a good story it really wasn't worth very much. He didn't talk to any of us when he was writing it. He talked to our friends and got to know us that way. Of course, this was a mistake as far as personalities are concerned. The details as far as selection of the astronauts and engineering changes were pretty well distorted. As a documentary piece it just was not worth very much.

**Approach:** Where does safety fit into the hierarchy of considerations? For instance, the Navy feels that no mission is so important during peacetime that lives should be lost. Was that the attitude back in the 1960s, when President Kennedy set the goal of a man on the moon before the end of the decade? What is the attitude today with regard to the space race in general?

**RAdm. Shepard:** Safety has always been paramount. Despite what you might hear, the relationship between the astronauts and the engineers in the design phases of Mercury, Gemini, and Apollo was good. Of course, you're going to have differing opinions because as a pilot you may want things that are going to take time and money. There's always a give-and-take.



Lcdr. Shepard is brought aboard the Marine Corps helicopter after his suborbital flight in May 1961. (NASA Photo)

My experience was always good. So many contingencies had been thought out; parallel and backup systems saved an awful lot of lives.

Thirty years ago, when we started manned space flight, we couldn't know

we'd have only two accidents in those 30 years. We would have said "Gosh, we just hope we're that good." Only two in 30 years, in an R&D, pushing-out-the-frontiers-type of project is pretty good.

— Lt. Ward Carroll



Three days after his suborbital flight, now-Cdr. Shepard visited the White House where President John F. Kennedy awarded him NASA's Distinguished Service Medal. (NASA Photo)

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Operation Pierce Arrow by R.G. Smith. In F-8E NF 101, Cdr. James Stockdale leads the first strike against North Vietnamese bases on August 5, 1964. Limited Edition print is available from U.S. Naval Institute, Annapolis, MD 21402.

**V**Adm. James Stockdale's stirring story of survival, loyalty and courage as a POW is well-known. He received the Medal of Honor for legendary examples of leadership in the Hanoi Hilton. But there is much more to his personal story. Originally a carrier-based ASW aviator, he graduated from Test Pilot School and eventually became one of the first F-8 Crusader pilots. In fact, he was the first to achieve 1,000 hours in Vought's trend-setting fighter.

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It was in the cockpit of an F-8E that then-Cdr. Stockdale, CO of VF-51, participated in the first U.S. strikes against the North Vietnamese. Flying from USS *Ticonderoga* (CVA-14), he led four Crusaders against Communist PT boats on August 2, 1964, after they had attacked the U.S. destroyer *Maddox*. Three days later, in Operation Pierce Arrow, aircraft from the *Tico* and *Constellation* (CVA-64) attacked North Vietnamese PT boat bases. Cdr. Stockdale led that raid, too.

He assumed command of Air Wing 16 in USS *Oriskany* (CVA-34) on February 18, 1965. The carrier deployed to Vietnam that May, and for the next four months, CVW-16 was involved in heavy combat as American participation in the Vietnam War increased. While flying an A-4E on September 9, he was shot down and began his incredible period of confinement as a POW.

After his release in 1973, he resumed his Navy career and eventually retired in 1979. He remains busy and is in constant demand as a speaker and consultant. The admiral spoke with us from his office at the Hoover Institution at Stanford University.

**Approach:** Admiral, how would you answer the following question: "In war, safety is....?"

**VAdm. Stockdale:** In war, safety is just another skill needed to keep the squadron flying and fighting. When the war starts, put those "Safety is paramount" signs in your bottom drawer. Nothing is para-

mount but mission accomplishment.

**Approach:** Certainly you don't disregard safety.

**VAdm. Stockdale:** Oh no, of course not. But it has to become second nature. You have to internalize things like systems knowledge. I knew a test pilot named Bud Holcombe who used to say, "Think

big and basically. Don't get rattled and you'll live forever." You have to become part of the machine; you're part of it and the systems are part of it. You're obviously not going to get back if you don't know how to handle emergencies.

A very bright young pilot, Ltjg. Dick Hastings, was with me when we made the first run on the PT boats on August 2, 1964. We were going after different boats and we attacked in such a manner that he could see me, but I couldn't see him. We pulled off almost simultaneously and he said, "I've been hit!" I joined on him and looked at his wing. It was damaged, but he wasn't losing any fluid—hydraulics or gas—and there were no burn marks. I realized then that he'd probably overstressed the airplane.

He was on his first cruise and this was the first live run made in the war. His inexperience and excitement caused him to try to pull the wings off the Crusader. That was his first mistake. Then, he thought, because the metal was loose and rattling, that he'd been hit. I knew that wasn't the case so I told him to hold there and I went back and made some more runs on the boats until I was down to bingo state. We were about 350 miles from the ship and the damaged plane had additional drag, so he couldn't fly the same bingo profile we were on. He safely recovered at Da Nang.



Cdr. James B. Stockdale as Commander, Air Wing 16.

Dick Hastings didn't make any big mistakes. He could've thought he was on fire and ejected, but he didn't. One of the things he didn't realize was the bingo cards were no good with unprogrammed drag. But, Dick was a fine kid and I thought well of him. He asked me about the LSO business and I told him he'd make a good one. I thought that much of him as a pilot. I was shot down the next cruise in September 1965, and I came home to find out that he did get LSO-qualified. Unfortunately, he was waving

at night and an F-8 hit the ramp and he wound up with some metal in his skull. He died later aboard a hospital ship off Vietnam from the wounds.

**Approach:** *Once the shooting started, did you find yourselves checking your survival gear more closely?*

**VAdm. Stockdale:** Yeah, of course we did. We had one guy, LCdr. Bill Powers, who was later killed, who was a sport jumper. He gave us talks on how to handle ripped chutes. Suddenly, there was a great interest in this and he was in demand.

**Approach:** *Obviously, you have to modify peacetime safety concerns once the war breaks out.*

**VAdm. Stockdale:** To be honest, as CO, I wouldn't know until I knew the pilots working for me. Once the shooting starts, some guys are quite nervous and spring-loaded to have a problem. You've got to calm them down. Some guys are slothful, or wiseguys. You've got to scare them. There's no average guy there.

**Approach:** *So basically, it's up to the CO to recognize the differences in his aviators.*

**VAdm. Stockdale:** Yes, I think that's it. I've never talked about this before, but I know two aviators that were perfect examples of this: Dick Hastings and Tim Hubbard. They were opposites. Lt. Tim Hubbard was a natural, had a good feel

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As the deck crewman signals a successful trap, this F-8E of VMF(AW)-212 returns from a combat mission during Oriskany's 1965 cruise. Cdr. Stockdale was CAG-16 at this time and often flew the F-8s of the two fighter squadrons in his wing.



for flying. He pushed his luck. He had a lot of experience and knew the systems, but he wasn't into the mechanical side of flying.

Dick Hastings was an engineer. He was very serious. You had to pump confidence into him. "It's gonna go all right. Don't worry if that flickers, that's normal." Or, "Yeah, I know what the book says, but don't get excited until something really goes wrong." Hubbard was just the opposite. "Dammit, you've got to pay attention to those gauges, because they're trying to tell you something. You've got a real problem and you're getting out of range," and so forth. It's a good safety touch to be a psychologist. (*Flying with VF-211, then-LCdr. Tim Hubbard shot down a MiG-17 on July 21, 1967.—Ed.*)

One of the best at this was the skipper of my first F-8 squadron, LCdr. "Red Dog" Davis. He had a standing order that new guys were not to talk to any Safety Officers or Operations Officers until they'd had two days alone with him. He'd break out the schematics and show the new guys what the books didn't tell them. He did it for effect. It would really draw the new people in and get them thinking on their own. He'd say, "I don't want these new guys getting scared to death at the all pilots meetings and the safety talks until they have their two days with me. I'll tell them what's important and what's not." He went on to four stars. He would have been head of the Blue Angels, but, in those days, they weren't letting any Naval Academy guys be Blue Angels because it was a recruiting tool for the Naval Aviation Cadet program.

I have to say that for some reason, today's safety statistics are light years better than when I was shot down. We used to go out for carquals in the F-8 and have to bring two or three duds back every week. Rates are way down; somebody's doing something better than I could have. I would never have anticipated this kind of improvement.

**Approach:** Senator John Glenn pointed out the F-8's lifetime mishap rate was 46.6.

**VAdm. Stockdale:** Well, John was the F-8 class desk officer at BUAIR, so he'd know those things. He was also a Test



Cdr. Stockdale, CAG-16, waits in his F-8 before a mission in 1965. Crusader belongs to VMF (AW)-212, the last Marine carrier-based squadron in combat until 1971.

Pilot School classmate of mine and he's not a bookish fellow. He's a practical guy. He came into the program as a major but he didn't have the college degree that was normally required. He knew he was going to have to burn the midnight oil, so he left his wife at home in Ohio. He'd be in the study room after hours all alone. If you were at home and you forgot what the assignment was, you could always call down there and ask John.

His flying was all seat-of-the-pants. Before the school started, he took me flying in whatever had two seats. I was full of theory and no practice in jets and he was the other way around.

The first time we flew together, we went on a cross-country to get some instrument time in a TV-1. I hopped in the back seat and he showed me how to get things hooked up. I'd never really seen the inside of the plane.

He said, "We're going down to Masters Field in Miami. Here's the book. You can do some navigating." He was kinda just being nice to me because I was the new guy and he was a good fellow.

We got down there and there were thunderstorms all around when we

landed. It had just turned dark. We were eating a hot dog and drinking a Coke in front of the line shack when he said, "Why don't you fly it back."

I said, "OK, John, but I've never been in that front seat." I noticed the lightning all around. He told me I could handle it.

He got me strapped into the front seat and then he stood up on the back and said, "OK, Jim. Do you see that handle down there? No, not that one, the red one. Now, push that outboard. Now you've got it. Now hit that button. That's your ignition. Hold that for just a minute. Now when it comes up to 15 percent, go around the horn." He had to start shouting once the motor started up and he yelled, "OK, I'll get in and put the canopy down."

He talked me out and all the way home. But, you can't do that stuff now. Those times were different.

**Approach:** Sounds like he had the makings of a good RIO.

**VAdm. Stockdale:** (laughs) He was a natural pilot. He knew systems and he was part of the system. His safety record speaks for itself.

— Lt. Ward Carroll and Peter Mersky



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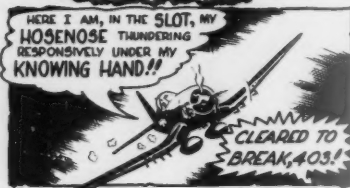
MAY 24 1990

# THE SHORT HAPPY LIFE OF FRANCIS MACLOBBER

ADAPTED FROM SOME WORDS OF WISDOM BY THAT FAMOUS AVIATOR: *Crest Hummingbird*..



**1950** FRANCIS MACLOBBER—ONCE A DULL COLORLESS YOUTH—NOW TRANSFORMED INTO A BUAVE, EXCITING, *BOY WHAT NAVAL* AVIATOR PREPARES TO SAVOR AGAIN THE THRILL THAT GIVES HIS LIFE REAL MEANING, NAMELY: **A HOT BREAK!!**



**OH BOY!!** THIS IS IT! HOW TO THRILL AND CHILL THE CROWD BELOW...



AND SO IT WENT WITH MACLOBBER—MONTH AFTER MONTH, EXPLOITING THE FAU AT 7½ G'S. HE WAS HAPPIER THAN HE'D EVER BEEN—SO EXULTED AT THOSE TIMES IN THE BREAK THAT HE THOUGHT HE COULD NEVER FEEL BETTER. BUT THEN, ALONG CAME...



**MAN! 450 KTS! WOW!** I WONDER IF MY FANS ARE WATCHING...



**WHOOIE!!** HERE I AM APPROACHING MY FAVORITE SPOT—AND IN A SWEET-WING JET! I BET THIS'LL BE OUT OF THIS WORLD!!



"Gee, I always thought he'd retired..."

